Citizens’ Water Advisory Committee (CWAC) Agenda

October 11, 2022, 6:00 p.m.
Aspen Room, 2nd Floor, Aurora Municipal Center/Hybrid

Microsoft Teams Link:
Click here to join the meeting
or
https://tinyurl.com/CWAC101122

Call in (audio only) - 720-388-8447
Phone Conference ID: 301 200 383#

Members: Angie Binder - Chair, Richard “Dick” Eason -Vice Chair, Jay Campbell, Tom Coker, Dennis Dechant, William Gondrez, Janet Marlow, David Patterson, Daniel Widrich

1. Approval of Minutes – September 13, 2022 Chair 6:00 p.m.
2. Introductions/Public Invited to be Heard Chair 6:05 p.m.
3. New/Old Business Chair 6:10 p.m.
4. Communications Update Greg Baker 6:15 p.m.
5. Environmental Education and Outreach Annual Report Natalie Brower-Kirton 6:20 p.m.
6. PFAS Update Sherry Scaggiari/Todd Brewer 6:50 p.m.
7. Review Follow-Up Questions Greg Baker 7:20 p.m.
8. Confirm Next Meeting – Tuesday, November 8, 2022 Greg Baker 7:25 p.m.
9. Adjourn Chair 7:30 p.m.
Members Present: Dick Eason - Vice Chair, Jay Campbell, Tom Coker, Dave Patterson, Bill Gondrez, Janet Marlow, Daniel Widrich

Absent: Angie Binder – Chair, Dennis Dechant


Visitors Present: None

The meeting was called to order at 6:01 p.m.

1. Approval of August 9, 2022, Minutes
The August 9, 2022, minutes were approved.

2. Introductions/Public Invited to be Heard
None.

3. New/Old Business
None.

4. Communications Update
Conservation Ordinance passed. M. Brown discussed the shortages/imbalance on the Colorado River. Municipalities have a really small percentage of use on the Colorado River. There have been a lot of discussions across different sectors on who’s willing to do the right thing and create conservation. Agriculture uses over 80% of the water from the Colorado River and will need to be a significant part of the solution to bring River uses into balance – many agricultural water users have been concerned that municipalities aren’t willing to commit to appropriate conservation (non-functional turf has been specifically highlighted). We worked with multiple other municipal water providers including Denver Water, Pueblo Water, the Metropolitan Water District of Southern California and the Southern Nevada Water Authority to draft a Memorandum of Understanding committing to municipal water efficiencies and conservation. The MOU commits participants to taking the following actions:
- Continue to expand our programs to increase indoor and outdoor water use efficiency.
- Introduce a program to reduce the quantity of non-functional turf grass by 30% through replacement of drought and climate resilient landscaping, while maintaining vital urban landscapes and tree canopies that benefit our communities, wildlife, and the environment.
- Increase water reuse and recycling programs where feasible, contingent on the dependability and security of our existing Colorado River supplies essential to support these efforts.
• Implement best practices and sharing lessons learned to help one another accelerate our efficiency strategies.

There is a goal of 30% by when? M. Brown replied, it’s up to the individual participant - we’ll be coming to the committee with ideas and proposals and working with the PROS department. The city has a lot of non-functional turf and we’ll create a program that focuses on those, and includes enhancements to our rebates. Which municipality is the biggest user by volume in Colorado? M. Brown replied, Denver. Is it fairly standard to take the total volume divided by the number of residents? M. Brown replied, that there are some inconsistencies with the way the numbers are calculated, but gallons per capita per day (gpcd) is the general measurement and it varies from around 80 gpcd to around 450 gpcd in the west. Who do we talk to about getting involved and lobbying with this type of work? M. Brown replied, the Bureau of Reclamation is getting a lot of feedback and the Colorado Water Conservation Board. It the Department of Agriculture involved? M. Brown replied, they’ve been quiet on this discussion. Water rights are owned by individuals and controlled more at the state level. Is most of the water usage happening in the lower basin? M. Brown replied, California is the largest user of the Colorado River and Colorado is second.

5. 2nd Quarter Financial Update
With the supply chain issues, can the city get water meters? J. Giddings replied, City is able to get meters and we keep some meters at the warehouse. With the growth we’re seeing and the connections is it mostly residential or commercial? J. Giddings replied, mostly residential.

6. Water Management Plan Overview
G. Baker presented on the Water Management Plan Overview, which provides demand management elements during drought stages. Aurora Water may suggest declaring stage I drought in 2023, which would mean 2 day-per-week watering for residential customers. D. Eason asked, We’ve got four days that people are watering, three that they are not. Does this have an impact on the treatment plants? G. Baker replied, it does not on a daily basis. We use the non-residential watering days for irrigation, municipal, commercial and multifamily to balance the load on the system. D. Widrich asked, How often do we expect a Stage 2 or 3? M. Brown replied, we’re in the process of updating our Integrated Water Management Plan (IWMP) and in that plan we do scenario planning which looks the ability of avoid stages and at the community’s acceptability for the frequency of stage declarations. We’ll bring an update of the IWMP to the committee in about a year. D. Widrich asked, Do we offer reclaimed or recycled water to our customers? G. Baker replied, we do not due to the cost of dedicated infrastructure for reclaimed water. Recycled water is the basis of our Prairie Waters potable reuse system. J. Marlow asked, If temperatures continue to rise and we get less snowpack how would that affect everything? M. Brown replied, most of the precipitation will still be applied and those models don’t predict the amount of precipitation changes much. We are building for more storage to capture the water.

7. 2022 Proposed Budget Presentation
G. Baker stated, the meeting is Tuesday, September 20, 2002, and will be a virtual meeting on Webex. What is the difference between the water fund projected revenue excludes proceeds from borrowing but includes wastewater funds? J. Giddings replied, we are not planning, however, we are looking at some debt in the wastewater.
8. Review Follow-Up Questions Generated at this meeting

9. Confirm Next Meeting – Tuesday October 11, 2022

10. Adjourn
The meeting was adjourned at 7:29 p.m.

__________________________
Angie Binder, Chair
Citizens’ Water Advisory Committee

Adopted: ___________________
MEMORANDUM

To: Citizens’ Water Advisory Committee

Through: Marshall P. Brown, General Manager, Aurora Water
         Greg Baker, Manager of Public Relations, Aurora Water

From: Natalie Brower-Kirton, Environmental Education and Outreach Program Manager, Aurora Water

Date: October 11, 2022

Subject: Aurora Water Education and Outreach Team
         2021-2022 Annual Report & Update

Purpose:
Aurora Water has provided water education and outreach programs for the community in many forms
reaching a wide range of community members for over twenty years. Staff will present highlights of the
Education team’s work during the 2021-2022 school year including adaptations for virtual learning, new
workshops and school assemblies.

Action Required:

No action at this time is required. This presentation is purely informative in nature.

Attachment: 2021-22 EE&O Annual Report

cc: File copy
The Aurora Water Environmental Education and Outreach team provides consistent, creative and impactful education and outreach programs that promote water literacy, water conservation, water pollution prevention, water careers and water stewardship in Aurora. This report summarizes the programs and projects completed during the 2021-2022 school year and outlines future programming.
# Aurora Water
## Environmental Education and Outreach Annual Report
### 2021-2022 School Year

**Table of Contents**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Project WET Educators of the Year 2021</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Aurora Water and the Statewide Water Education Action Plan</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Youth Education</strong></td>
<td>6</td>
</tr>
<tr>
<td>Classroom Presentations</td>
<td>10</td>
</tr>
<tr>
<td><em>New Presentations</em></td>
<td></td>
</tr>
<tr>
<td><em>Virtual Presentations</em></td>
<td></td>
</tr>
<tr>
<td><em>Virtual Water Supply Tour</em></td>
<td></td>
</tr>
<tr>
<td>Assembly Presentations</td>
<td>17</td>
</tr>
<tr>
<td><em>Water in the Ol’ West</em></td>
<td></td>
</tr>
<tr>
<td><em>Facts behind the Faucet</em></td>
<td></td>
</tr>
<tr>
<td><em>Sunny Takes a Walk on the Water Side Puppet Assembly</em></td>
<td></td>
</tr>
<tr>
<td>Classroom and Assembly Presentation Evaluation</td>
<td>17</td>
</tr>
<tr>
<td><strong>Careers in Water Program</strong></td>
<td>19</td>
</tr>
<tr>
<td><em>Career Information Fair, Science Fair</em></td>
<td></td>
</tr>
<tr>
<td><em>Pipeline Program Update</em></td>
<td></td>
</tr>
<tr>
<td><strong>Field Trips</strong></td>
<td>19</td>
</tr>
<tr>
<td><em>Virtual Water Tour</em></td>
<td></td>
</tr>
<tr>
<td><em>H2O Outdoors</em></td>
<td></td>
</tr>
<tr>
<td><em>Aurora Reservoir Water Quality/Macroinvertebrates</em></td>
<td></td>
</tr>
<tr>
<td><em>Youth Water Festival</em></td>
<td></td>
</tr>
<tr>
<td><em>Virtual Youth Water Festival</em></td>
<td></td>
</tr>
<tr>
<td>Teacher Resource Library</td>
<td>27</td>
</tr>
<tr>
<td>Aurora Public Schools New Fifth Grade Water Unit</td>
<td>28</td>
</tr>
<tr>
<td>Leaders as Readers</td>
<td>29</td>
</tr>
<tr>
<td>Youth Education Program Summary</td>
<td>29</td>
</tr>
<tr>
<td><strong>Professional Development Workshops for Teachers</strong></td>
<td>33</td>
</tr>
<tr>
<td>Forests to Faucets</td>
<td>33</td>
</tr>
<tr>
<td>Forests to Faucets 2</td>
<td>35</td>
</tr>
<tr>
<td>Aurora Public Schools 5th Grade Teacher Workshop</td>
<td>37</td>
</tr>
<tr>
<td><strong>Community Education &amp; Outreach</strong></td>
<td>38</td>
</tr>
<tr>
<td>Online Water Conservation Classes</td>
<td>38</td>
</tr>
<tr>
<td>Community Outreach Events</td>
<td>39</td>
</tr>
<tr>
<td>Trumbull Experimental Forest</td>
<td>39</td>
</tr>
<tr>
<td><strong>Future Projects</strong></td>
<td>40</td>
</tr>
</tbody>
</table>
Appendices

Appendix A: Youth Education Program Assessment/Evaluation Data 41
Appendix B: Teacher Survey Data - Youth Education Programs 49
Appendix C: Forests to Faucets 2020 Agenda and Evaluation Data 52
Appendix D: Forests to Faucets II 2020 Agenda and Evaluation Data 55
Appendix E: APS 5thGrade Teacher Workshop and Evaluation Data 58

Introduction

For more than 20 years, the Aurora Water Department has provided water education and outreach programs for the community in many forms reaching a wide range of community members. Providing water education programs on all levels from preschoolers to adults not only creates a community that is knowledgeable about water and values water, but acts on that knowledge to change behaviors and make water smart choices. For many of the water department’s programs to be successful – whether they be new water projects, incentives or regulations – a water literate public that values water as a natural resource is fundamental. Over time, the need for education and outreach programming has increased and in January 2018 the Environmental Education and Outreach Section of the Public Affairs Division of Aurora Water was created. The mission of the Environmental Education and Outreach (EE&O) team is to continue to provide consistent, creative and impactful education and outreach programs that promote water literacy, water conservation, water pollution prevention, water careers and water stewardship in Aurora.

This report summarizes the programs and projects completed during the 2021-2022 school year and outlines the direction of work for future programming. By driving excellence in the field, the Aurora Water Environmental Education and Outreach team continues to foster collaborations and provide programs that educate the community about water.

<table>
<thead>
<tr>
<th>Driving Excellence</th>
<th>Fostering Collaboration</th>
<th>Educating the Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>• We drive the excellence of Environmental Education in Colorado creating programs that impact behavior change.</td>
<td>• We foster water education in Aurora through professional affiliations, partnerships and collaborative projects both internally, within other City of Aurora Departments and with external organizations.</td>
<td>• We educate the community on multiple aspects of water at all levels through programs that lead to the efficient use and protection of water.</td>
</tr>
</tbody>
</table>
Project WET Educators of the Year - 2021

Project WET (Water Education Today) is dedicated to solving critical environmental challenges by teaching the world about water. They provide hands-on, science-based water education curriculum and resources to formal and non-formal educators around the world. The Aurora Water Environmental Education and Outreach Team was honored to receive the 2021 Project WET Educator of the Year Award. Each of our team members are trained Project WET facilitators and have over thirty years of combined experience using Project WET materials to teach students in Aurora about local water issues including facilitating the annual Forests to Faucets Teacher workshops in which teachers learn how to use Project WET activities to enhance their lessons about water.

Aurora Water and the Statewide Water Education Action Plan

In 2019 our team was invited to participate as a Core Collaborator in the creation of the Statewide Water Education Action Plan. This plan is a Water Education Guide for Colorado that came out of the Colorado Water Plan. The Colorado Water Plan (CWP) was created in 2015 and sets forth strategies to meet Colorado’s water needs by 2050. One of the eight major components of the CWP is water education and outreach and the success of the plan depends upon an educated community that is actively engaged in discussing, funding, and implementing balanced water solutions. This dynamic relies upon robust, sustainable water education that focuses on and delivers the following education objective identified in the CWP:

Significant improvement of public awareness and engagement regarding water issues statewide by 2020*, as determined by water awareness surveys.
*SWEAP implementation began in January 2020; as a result, SWEAP’s target for this objective has been extended to the end of 2025*

In addition, the Education chapter of the CWP called for expanded outreach and education efforts that engage the public to promote well-informed community discourse and decision making regarding balanced water solutions.

A coalition of educators, including staff from Aurora Water Environmental Education & Outreach who created SWEAP, also recognized the need to empower Coloradans to take an active role in their communities and make informed decisions about critical water issues. Aurora Water has endorsed the plan and our EE&O team continued to support the plan in 2021 & 2022 by working on committees to assist with implementation and evaluation including a committee working to correlate the statewide water education plan to Colorado academic standards by grade level. The team will continue to contribute to the SWEAP program through our Education and Outreach programs through 2025. The SWEAP plan categorizes outcomes according to awareness, knowledge and skills, behavior change and systems change. The table below shows these outcomes and the disciplines and strategies best used for each type of outcome.

<table>
<thead>
<tr>
<th>TYPE OF OUTCOME</th>
<th>DISCIPLINES AND STRATEGIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AWARENESS</strong></td>
<td>Awareness is the first step toward engagement.</td>
</tr>
<tr>
<td></td>
<td>Water educators use public relations strategies to raise awareness. <strong>PUBLIC RELATIONS</strong></td>
</tr>
<tr>
<td><strong>KNOWLEDGE &amp; SKILLS</strong></td>
<td>Knowledge is required for well-informed decisions. Skills are required for effective discourse. <strong>EDUCATION</strong></td>
</tr>
<tr>
<td></td>
<td>Water educators use education strategies to increase knowledge and teach skills. <strong>SOCIAL MARKETING</strong></td>
</tr>
<tr>
<td><strong>BEHAVIOR CHANGE</strong></td>
<td>Behavior changes are required for increased engagement.</td>
</tr>
<tr>
<td></td>
<td>Water educators use systems thinking strategies to encourage behavior changes. <strong>SYSTEMS THINKING</strong></td>
</tr>
<tr>
<td><strong>SYSTEMS CHANGE</strong></td>
<td>Systems change is required for balanced solutions and empowered communities.</td>
</tr>
<tr>
<td></td>
<td>Water educators use systems thinking strategies to ensure citizens help shape systems change. <strong>SYSTEMS CHANGE</strong></td>
</tr>
</tbody>
</table>

The following table shows where our current and future Aurora Water EE&O programs align with these outcomes and strategies.
## Aurora Water Environmental Education & Outreach Programs and SWEAP Outcomes

### Driving Excellence in Water Education

<table>
<thead>
<tr>
<th>Aurora Water Environmental Education &amp; Outreach (EE&amp;O)</th>
<th>Statewide Water Education Action Plan Outcomes Alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Awareness</td>
</tr>
<tr>
<td>Aurora Public Schools 5th Grade Water Unit</td>
<td>✓</td>
</tr>
<tr>
<td>Classroom Presentations, School Assemblies &amp; Field Trips</td>
<td>✓</td>
</tr>
<tr>
<td>MSU Theatre Project</td>
<td>✓</td>
</tr>
<tr>
<td>H2O Outdoors</td>
<td>✓</td>
</tr>
<tr>
<td>Trumbull Experimental Forest - Outdoor Watershed Classroom</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Creating and Informed Community - Collaborating to Create Behavior Change

| Outreach & Events                                     | ✓         | ✓                      | ✓         | ✓      | ✓            | ✓                         | ✓                        | ✓                | ✓                | ✓                |
| In person and Online Conservation Courses             | ✓         | ✓                      | ✓         | ✓      | ✓            | ✓                         | ✓                        | ✓                | ✓                | ✓                |
| Pipeline: Careers in Water Program                    | ✓         | ✓                      | ✓         | ✓      | ✓            | ✓                         | ✓                        | ✓                | ✓                | ✓                |
| Forest to Faucets Teacher Workshops                   | ✓         | ✓                      | ✓         | ✓      | ✓            | ✓                         | ✓                        | ✓                | ✓                | ✓                |
| Aurora Water Course (Coming Soon!)                    | ✓         | ✓                      | ✓         | ✓      | ✓            | ✓                         | ✓                        | ✓                | ✓                | ✓                |
Youth Education

Aurora Water has one of the region’s most comprehensive youth education programs. Recognized throughout Colorado as a leader in youth education, these programs have won numerous awards. Programs are conducted for public schools, private schools, youth groups such as boy scouts and girl scouts, summer camp programs and environmental clubs. In addition, programs are grade-specific with choices for preschool, elementary, middle and high school grade levels that meet Colorado’s State Academic Standards as well as correlate to school district curriculum.

The 2021-2022 school year continued to be challenging with the Covid-19 pandemic. The EE&O team continued to adapt all of our school programming to virtual platforms as students returned to learn in school but visitors were not allowed. Even though programming was completely virtual from August 2021-April of 2022 during this time, the team provided programming for 10,304 Aurora students during the 2021-2022 school year.

<table>
<thead>
<tr>
<th>Youth Water Education Programs: 2021-2022 School Year</th>
<th>Number of Presentations</th>
<th>Students in Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunny Takes a Walk on the Water Side</td>
<td>16</td>
<td>432</td>
</tr>
<tr>
<td>(Preschool-K)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storytime with Aurora Water</td>
<td>11</td>
<td>288</td>
</tr>
<tr>
<td>(Preschool-2nd Grade)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I Were a Fish</td>
<td>26</td>
<td>872</td>
</tr>
<tr>
<td>(Preschool-1st Grade)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incredible Journey</td>
<td>12</td>
<td>300</td>
</tr>
<tr>
<td>(Preschool-5th Grade)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Heroes</td>
<td>21</td>
<td>806</td>
</tr>
<tr>
<td>(Grades 1-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water &amp; Weather</td>
<td>37</td>
<td>1,226</td>
</tr>
<tr>
<td>(Grade 2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservation Capers</td>
<td>19</td>
<td>462</td>
</tr>
<tr>
<td>(Grades 3-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water: Keep it Clean</td>
<td>23</td>
<td>678</td>
</tr>
<tr>
<td>(Grades 3-8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aurora’s Water History</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>(Grade 4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Grades</td>
<td>Count</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>We All Live Downstream (Grades 5-8)</td>
<td></td>
<td>125</td>
</tr>
<tr>
<td>Water Pen Pals (Grade 5)</td>
<td></td>
<td>203</td>
</tr>
<tr>
<td>Water Around the World (Grade 5-6)</td>
<td>31</td>
<td>654</td>
</tr>
<tr>
<td>Conservation Challenge (Grades 6-8)</td>
<td>5</td>
<td>300</td>
</tr>
<tr>
<td>Careers in Water &amp; Water Supply (Grades 9-12)</td>
<td>16</td>
<td>390</td>
</tr>
<tr>
<td>Climate Change &amp; Water (Grades 9-12)</td>
<td>21</td>
<td>940</td>
</tr>
<tr>
<td>Muck Up, Clean Up (Grades 9-12)</td>
<td>4</td>
<td>100</td>
</tr>
</tbody>
</table>

**Virtual Assemblies**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Grades</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water in the Ol’ West (Grades 1-5)</td>
<td>4</td>
<td>335</td>
</tr>
<tr>
<td>Facts Behind the Faucet (Grades 6-8)</td>
<td>17</td>
<td>1,080</td>
</tr>
</tbody>
</table>

**In Person Assemblies**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Grades</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunny &amp; Friends Puppet Show (Preschool)</td>
<td>1</td>
<td>30</td>
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</table>

**Virtual Field Trip**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Grades</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Water Festival (Grade 5)</td>
<td>10</td>
<td>251</td>
</tr>
</tbody>
</table>
In Person Field Trips

<table>
<thead>
<tr>
<th>Event</th>
<th>Number of Presentations</th>
<th>Students in Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Festival</td>
<td>10</td>
<td>350</td>
</tr>
<tr>
<td>Water Quality @ Aurora Reservoir</td>
<td>32</td>
<td>452</td>
</tr>
<tr>
<td>H2O Outdoors (High School)</td>
<td>7</td>
<td>30</td>
</tr>
</tbody>
</table>

Total: 330 students presented, 10,304 students in attendance.

---

Handwritten note:

Dear [Handwritten name],

Thank you for the memories, experiences, and laughter. You showed me so much, the only thing I regret is that it’s over! So...

Thank you!

From: Alicia
**Classroom Presentations**

Presenters bring creative, fun, water related models, games and activities into classrooms in Aurora that are correlated to Colorado state standards and school district curriculum. In each presentation, students learn where their water comes from, how to prevent water pollution and the importance of water conservation. Presentations are offered for every grade from preschool to high school and are free of charge to schools in Aurora. For the majority of the 2021-2022 school year presentations were conducted virtually and in person presentations were resumed in April and May.

**New Presentations**

*Sunny and Friends– Assembly Puppet Show (Preschool-Kindergarten)*

With the acquisition of a larger, free standing puppet theatre, additional puppets and props the “Sunny Takes a Walk on the Water Side” classroom puppet presentation was expanded for use with larger assembly style performances. The assembly performance, Sunny & Friends was piloted at Tallyn’s Reach Library in June of 2022 and many schools have already requested the presentation for the 2022-2023 school year.

**Watershed Pen Pal Program**

This year, EE&O collaborated with the director of the Roaring Fork Conservancy to develop a Pen Pal Program for students to compare the water and the ecosystems in their area including the headwaters/mountains vs. the plains. Fifth grade teachers from Vista Peak Elementary worked with the teachers at Basalt Middle School. Approximately 203 students participated in the program and were matched with one or two other students. The program was aligned to the 5th grade ELA, Science, Social Studies and Writing state standards. A Google Slide Show was developed to help the students learn about the watershed and each other. Writing prompts were sent to the teachers 4 times throughout the winter and spring to help the students structure their letters. The students were also taught how to write a friendly letter though this program. Staff from the Roaring Fork Conservancy and Aurora EE&O also visited each of the respective schools and provided programing at the school or virtually.
**Live Virtual Presentations**

Due to the Covid-19 pandemic guests were not allowed into the schools for most of the school year. The EE&O team transformed all classroom presentations into virtual presentations. Video production software and tools such as “Doodley” were used to incorporate video and audio into the presentations. Online surveys were also created in place of our evaluation worksheets. In addition, the Aurora’s Water History presentation was turned into an online course using Articulate software.

*Sherry Meschko teaching “Water: Keep it Clean” and Mary Dawson and Natalie Brower-Kirton presenting “Water in the Ol’ West” from the virtual studio*

*“Aurora’s Water History” Online Course created by Viviana Zavala*
Ms. Griep’s 5th Grade Class Reflections after “Water Around the World” presentations:

ANGIE
I learned that water is dirty. I can take less time in the rain. It is important because we can't make water.

I learn that water is time.
I can save water at home by taking a fast shower.

Kingston
I can be more careful with the water and do not waste water.

Audrina
I learned to be more grateful for water. What I can do to save water is to not take long showers.

Ms. Griep’s Reflection
1. What did you learn from these two days?
2. What specifically can you do to save more water in your life?
3. Why is it important to save water?

Soed reflection
1. I learned that to be more grateful for water because people don’t have a lot of water in the world.
2. I can save more water by taking shorter showers.
3. It is important to save water because people need it to survive.

Owen’s reflection
Something I learned is maybe we should not act like we can always have water because there is people that do not even have clean water to drink. I can take showers that are not as long to save water and not have water on when I am brushing my teeth.

It is important to save water because when you use water after a while we may not have a lot of clean water if people keep wasting it.

Julian
I learned that I could be more great full water because some people don’t have water.

1. what I learned is that they have to the girls to get water every time for there hole intityr reeses. 1. I can time my self, because we need to drink and see.

Ms. Griep’s Reflection
1. What did you learn from these two days?
2. What specifically can you do to save more water in your life?
3. Why is it important to save water?

Kalsoom’s Reflection
1. I learned that water is dirty. I can take less time in the rain. It is important because we can’t make water.
2. I can save more water by taking shorter showers.
3. It is important to save water because it helps the geese.

Aleyah’s reflection
I learned that nature need a lot more water than we think.

When I can do to save water is to not use as much water and not to take long showers.

It is important to save water because it helps our planet earth.

Abdiel
I learned that you use a lot of water in the united states, is to not use that much in a day because if we had no water we will die.

I will save water by not using the water and use it when needed to be used.
Ms. Griep’s 5th Grade Class Reflections after “Water Around the World” presentations (continued):
The following handout for teachers lists all of the available classroom and assembly presentations for the 2021-2022 school year.

**School Presentations**
Aurora Water is offering classroom presentations virtually.
Presentations can be done synchronously or asynchronously and are correlated to state standards. Pre-presentation activities are also available upon request. To schedule a presentation, please submit a [PRESENTATION REQUEST FORM](#) or contact us at [WATEREDUCATION@AURORAGOV.ORG](mailto:WATEREDUCATION@AURORAGOV.ORG).

**Early Childhood and Elementary**

**Sunny Takes a Walk on the Water Side – Puppet Show (Preschool – Kindergarten)**
Take a walk with Sunny as he explores the Aurora Reservoir while learning to conserve water and prevent water pollution. Sunny will meet many friends along the way who will teach him, and your students, about the water that we drink and use. 30-minute program, can be presented to 1-4 classes at a time.

**If I Was a Fish (Preschool – Grade 1)**
What would you need if you were a fish? Clean water! Explore the importance of this natural resource through movement and songs like “H2O” and “If I Was a Fish.” Learn about the water cycle and the role people play in it, as well as how we use water and how kids can help protect it. 30-minute program, can be presented to 1-4 classes at a time.

**Storytime with Aurora Water (Preschool-Grade 2)**
An Environmental Education and Outreach team member reads stories about water, relates the stories to Aurora’s water and answers questions. 30-minute program, can be presented to 1-4 classes at a time.

**Water Heroes (Grade 1-3)**
It takes a lot of interesting people with cool jobs to provide water to Aurora. Learn about the people in our community who bring water from the water cycle to your faucet. 40-minute program, can be presented to 1-4 classes at a time.

**Water & Weather (Grade 2)**
What does our weather have to do with our water? Everything! Learn fun facts about the water cycle, where you get your drinking water and how we measure snow. 30-minute program, can be presented to 2 classes at a time.

**Conservation Capers (Grade 3-4)**
Students learn about the source of their water, water conservation techniques and how to do a home water assessment. 40-minute program, can be presented to 1 class at a time.

**Water – Keep it Clean! (Grade 3-5)**
How much water is on Earth? What is a watershed? Take a look at a watershed model to understand how kids can help protect our water from non-point and point-source pollution. 50-minute program, can be presented to 1 class at a time.
Asynchronous Virtual Presentations

WATER is a precious resource in Aurora. We teach kids to make the most of every drop.

Aurora’s Water History (Grade 4)
Students learn how water has played an important role in the history of Aurora.
40-minute program, can be presented to 1 class at a time

Water in the Ol’ West Assembly Presentation (Grade 4)
Take a journey back in time to the cattle drives. Calamity Jane and Barb Wire share a chuck-wagon full of antiques and treasures and tell the tale of water use in the Ol’ West.
40-minute program, can be presented to a minimum of 3 classes at a time

We All Live Downstream (Grade 5-6)
We all live in a watershed. Learn about the watersheds where your water comes from and how to protect it from pollution.
50-minute program, can be presented to 1-2 classes at a time

Water Around the World (Grade 5)
Aurora has a complex system that brings clean water to our homes. Experience what moving your own water is like by playing the “Long Haul” game and learn how people around the world use water from a variety of sources to survive.
60-minute program, can be presented to 1 class at a time

Middle School

Water Around the World (Grade 6-8)
Aurora has a complex system that brings clean water to our homes. Experience what moving your own water is like by playing the “Long Haul” game and learn how people around the world use water from a variety of sources to survive.
60-minute program, can be presented to 1 class at a time

Conservation Challenge – Rebate Game (Grade 6-8)
Learn about the source of your water and form teams of “families” who compete to save the most water.
45-minute program, can be presented to 1-2 classes at a time

The Facts Behind the Faucet (Grade 6-8)
We turn on the tap, drink it, bathe in it, flush it. Students learn about global water issues, our water system from source to tap and how they can be the most efficient water users.
50-minute program, can be presented to 1-6 classes at a time

High School

Aurora’s Water Supply + Careers in Water (Grade 9-12)
Learn about Aurora’s water system and the types of careers involved in the water industry.
45-minute program, can be presented to 1-2 classes at a time

Muck Up – Clean Up (Grade 9-12)
Students use critical thinking to predict how water runoff from different land uses within a watershed can pollute our water systems. Common household items represent pollutants and hazardous chemicals that are commonly found at hazardous waste sites. By simulating the contamination of water by various kinds of chemicals and how they react within the chemistry of the water molecule itself, students are introduced to current cleanup techniques being employed.
50-minute program, can be presented to 1 class at a time

Climate Change and Water (Grade 10-12)
Discover climate change science and the social, economic and environmental effects it has on our water.
45-minute program, can be presented to 3 classes at a time

Aurora Water
In addition to live virtual presentations the following presentations were offered to teachers who were looking for asynchronous learning opportunities for students to view any time. Presentations were sent as links that teachers can share with their students.

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Grade Level</th>
<th>Virtual Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I Was a Fish</td>
<td>P-1</td>
<td>PowerPoint w/ Voice &amp; Video of PowerPoint</td>
</tr>
<tr>
<td>Sunny Takes a Walk on the Water Side</td>
<td>P-K</td>
<td>Video of puppet show at Aurora and Quincy Reservoir</td>
</tr>
<tr>
<td>Storytime with Aurora Water</td>
<td>P-2</td>
<td>Video</td>
</tr>
<tr>
<td>Water &amp; Weather</td>
<td>2</td>
<td>PowerPoint w/ Voice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation Quiz-Survey Monkey</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Video of PowerPoint</td>
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<tr>
<td></td>
<td></td>
<td>Cloud in a Bottle Demonstration Video</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aurora Water Snow Reads Video</td>
</tr>
<tr>
<td>Aurora’s Water History</td>
<td>4</td>
<td>Articulate Online Class</td>
</tr>
<tr>
<td>Facts Behind the Faucet</td>
<td>6-8</td>
<td>ESRI GIS Virtual Water Supply Tour-Interactive Story map Where Does our Water Come From?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation Worksheet Word</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation Worksheet pdf</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluations Quiz-Survey Monkey</td>
</tr>
<tr>
<td>Conservation Capers</td>
<td>3</td>
<td>Articulate Online Class</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation Quiz-Survey Monkey</td>
</tr>
<tr>
<td>Water: Keep it Clean</td>
<td>3-5</td>
<td>Water Pollution Prevention Lesson Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pollution Prevention PowerPoint/Video</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enviroscape in a jar video</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clean up the Water Activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation Quiz-Survey Monkey</td>
</tr>
<tr>
<td>Chemistry of Hand Washing</td>
<td>K-8</td>
<td>Doodley Video- 5 Minutes</td>
</tr>
<tr>
<td>Water Heroes</td>
<td>1-3</td>
<td>Water Heroes PowerPoint Video</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Water Heroes Student Survey</td>
</tr>
<tr>
<td>Facts Behind the Faucet (For Careers)</td>
<td>9-12</td>
<td>PowerPoint w/ Voice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Video of PowerPoint- Part 1</td>
</tr>
</tbody>
</table>
Assembly Presentations

Water in the Ol’ West - (Grade 4)
Fitting nicely into the fourth-grade unit on Colorado history, the Water in the Ol’ West assembly presentation not only provides a narrative into the necessity of creative water conservation along the long, dusty route of historic cattle drives, but it also provides a glimpse into life along the local Colorado cattle trails of the 1880s. Using historical props from the time period, presenters act as Calamity Jane and Barb Wire and share the story of cow hands and cooks out on the range.

Continued restrictions on in-person learning necessitated the Water in the Ol’ West assembly remain as either the animated version of the live play or was presented live from our studio through meeting platforms for the 2021-22 school year.

Feedback from the approximately 400 students who viewed the presentation virtually live from our studio or in the animated version, has been overwhelmingly positive. Discussions about the water-conserving advantage of washing the dishes, then oneself, and then washing personal undergarments (in that order) tend to spark spirited debate.
Humorously, the students also want to know if the cow pie fire prop is authentic (it is), and if Calamity Jane “really talks like that” with a heavy Southern accent (she does).

The Facts behind the Faucet- (Grade 6)
The science curriculum for sixth-grade students in Aurora includes a comprehensive study of water. By the end of their sixth-grade year, students need to know about the source of their drinking water, local water issues and information for their community as well as where water goes after it goes down the drain. In order to accommodate as many sixth-grade students as possible and provide information about Aurora Water specifically the “Facts behind the Faucet” assembly was created. In this interactive assembly, students not only learn the facts about the planet’s water availability, but also specifically about Aurora’s water supply system, water treatment, stormwater and wastewater services. During the 2021-2022 school year and remote learning, no in-person assemblies were conducted. However, over 1,000 students were given access to the virtual water supply tour for further learning.

Classroom/Assembly Presentation Evaluation
The Aurora WaterYouth Education Evaluation Plan lays out the goals, themes and objectives for each presentation and identifies key messages that students should remember after participating in a classroom presentation, assembly or field trip.

Student Assessment
During the 2021-2022 school year online surveys were used to collect evaluation data from students and assess learning. 151 students returned evaluation information. Data was received for the “Conservation Capers”, “Water Around the World” and “Water & Weather” programs.

Overall, data collected has been positive with educational objectives being reached although the number of students participating in an online survey post-presentation decreased sharply this school year. This may be due to presentations being conducted virtually and the challenge for teachers to have students fill out surveys. In past years more students filled out evaluations when they were handed out at the end of the presentation by the presenters.

The challenge moving forward will continue to be receiving enough data back from teachers. It’s often quite difficult for teachers to work in an additional worksheet assessment or computer assessment of the presentation due to time...
constraints. The team will also continue to evaluate assessment strategies and the questions asked on the worksheets.

Although student assessments were received from a very small sample group this year overall student assessment of our youth education programs shows that objectives are being met and students are learning the main ideas and can convey those ideas after the presentation. Detailed information on data received by presentation can be found in Appendix A.

**Assembly/Classroom Presentation Teacher Feedback:**
Teachers were invited to provide feedback on our presentations via an online survey. Twenty four teachers who contacted us to set up presentations for their school and saw a presentation submitted a survey.

Teachers were asked to rate the presentation from 1 (poor) to 5 (excellent). Teachers rated the presentations as “excellent” or “good” in all categories. 100% of teachers would invite us back. For more details please see Appendix B.

**Promotion:**
In addition to the Aurora Water website, our school presentation program was promoted to Aurora teachers via email. Extensive information was also shared with all the teachers who attended our Forests to Faucets workshops in July 2021. A large majority of teachers contacting us for presentations have had presentations in past years.

**Careers in Water**

**Career Information Fair**
Due to COVID19 restrictions, the annual Aurora Public Schools career fair was postponed. Aurora Water provided virtual and online access to career information.

**Science Fair**
Due to COVID19 restrictions, the 2021 annual science and engineering fair was a virtual event. Aurora Water provided expert technical support for those students participating.

**Pipeline/Careers in Water**
Due to COVID19 restrictions, internships and job shadowing opportunities were postponed to a later date. Aurora Water continues to offer advice in career water fields and virtual career presentations were attended by over 350 high school students.

**Field Trips and Tours**

**Virtual Water Tour**
The virtual water tour, *Auora’s Water Supply* is an online ESRI Story Map orginially created for 5th graders. Links to this tour are shared with teachers by request and it is also accessible from the Aurora Water website. During this school year 708 students from 5th
grade through high school have used the virtual tour. The following graphic shows more
details related to the virtual water tour audience:
H2O Outdoors
For over ten years the Aurora Water Education Team has been a partner in the facilitation of H2O Outdoors, a standards-based, educational program hosted at Keystone Science School. H2O Outdoors is available to all high school students within the Aurora Water resources footprint. Over the course of three days, students participate in a stream survey, expert panel and town hall meeting. Advocating in the role of a water stakeholder, students gain broad understanding of the human and environmental complexities of water management in Colorado and the West. Thirty students participated in the fall 2021 session.

H2O Outdoors Student Comments
“It is important to understand the issues surrounding water policy and management.”

“The history of water policy is important in understanding current water issues in Colorado.”

“Stakeholders impact decision making for water policy and management in Colorado.”

“I have the desire to get involved in water use issues.”

“This was a really great experience. Thank you!”

Water Quality/Macroinvertebrate Field Trips at Aurora Reservoir
During the 2021-2022 school year the team was able to conduct two in person outdoor field trips at Aurora Reservoir.

<table>
<thead>
<tr>
<th>Date</th>
<th>School</th>
<th># of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct. 15, 2021</td>
<td>Aspen Crossing Elementary School</td>
<td>100</td>
</tr>
<tr>
<td>April 15, 2022</td>
<td>Aurora Quest K-8</td>
<td>60</td>
</tr>
</tbody>
</table>

**Youth Water Festival**

2022 marks the 28th year of the Aurora Youth Water Festival. This year school district transportation availability limited the number of students who could participate in person so a virtual event was also held. This successful environmental education opportunity for Aurora’s 5th graders was one of the first of its kind in Colorado. The event is a one-day festival full of fun, hands-on learning about our watershed, water pollution prevention and water conservation. On May 19, 350 students and their teachers attended the in-person, mostly outdoors festival. The event, held each year at the Community College of Aurora, features presentations and exhibits that cover a wide variety of water related topics. Students experience activities such as *The Wall of Water, The Great Water Relay, Water Magic, Water Wizard Trivia and Gold Panning.*

**Program Goals:**
- Expand Aurora fifth graders’ understanding and knowledge of their water and watershed
- Provide fifth grade students in Aurora with a memorable, “hands-on” field trip experience in which they learn directly from experts in the water field.
- Provide teachers with quality water curriculum to use with their students before and after the water festival
- Increase appreciation for water and encourage water conservation and pollution prevention.
• Students will be able to list concrete actions that they will take to conserve or protect water.
• Provide students with an opportunity to visit a college campus.

Summary:
• Attendance: twelve classes from 6 elementary schools or 350 fifth graders. Due to school district transportation challenges this was the maximum number of students that could get to the festival in person this year.
• 65 people volunteered their time as presenters, exhibitors or for general festival logistics. 34 of those people were Aurora Water employees.
• Evaluation forms from teachers, presenters, exhibitors, volunteers and students were very positive. Everyone enjoyed the day and felt that it was well organized and educational.

Presenter & Exhibitor Feedback:
100% of the Presenters who completed the survey agreed that the festival was well organized and that their experience at the water festival was great. 100% felt they received the information they needed prior to the festival. They were happy with their room accommodations and 94% are interested in participating next year. Most really enjoyed the smaller in person festival. When asked to rate the overall festival on the following scale: Wonderful, Really Good, Ok, Needs Work, Give it Up, 100% gave the highest rating of “Wonderful.”

Volunteer Feedback:
100% of volunteers who returned their evaluations felt that their time was well spent and that their “job duties” were well organized and needed. They also stated that the Volunteer Orientation meeting was very helpful and the time spent the day before the festival was just what they needed. 100% of those that returned a survey are interested in participating next year. When asked to rate the overall festival on the following scale: Wonderful, Really Good, Ok, Needs Work, Give it Up. 83% of volunteers rated the festival as “Wonderful” and 17% rated it as “Really Good.”

Youth Water Festival Teacher Feedback:
Teachers’ comments were overwhelmingly positive. Overall all of the teachers who answered the survey about the festival gave a rating of excellent or very good for every category.

Festival Presenters and Exhibitors:

**Private and Non-Profit groups Represented:**

- Apprentice of Peace
- Cherry Creek Stewardship Partners
- Colorado Watershed Assembly
- CSU Spur
- Excel Energy
- Gold Prospectors of the Rockies
- High Line Canal Conservancy
- History Colorado Center
- Magical Comic
- The Bubble Tower

**Public Entities Represented:**

- Aurora Open Space and Natural Resources
- Aurora Water
- City of Aurora Aquatics
Virtual Aurora Youth Water Festival

Due to the pandemic a virtual version of the Aurora Youth Water Festival was developed and that replaced the in-person Youth Water Festival for 2020 & 2021. An online, interactive notebook was created for all fifth-grade students. This virtual notebook consisted of 10 lessons the students could participate in. Each student that completed a lesson was rewarded with a prize. Presentations were shared virtually through videos and activities that students could conduct at home or in their classroom. Luckily, as pandemic guidelines slowly lifted, we were able to hold an in-person Youth Water Festival in May of 2022 but attendance was limited due to school district transportation challenges. The team continued to promote the online version for schools that were unable to attend our live festival.

“Love this program!!.”
-Terri Simonich / Canyon Creek Elementary
Teacher Resource Library:
The following water education tools are available for Aurora teachers to check out from the EE&O program:

<table>
<thead>
<tr>
<th>Resource</th>
<th>Number of Teachers Checking out Resource</th>
<th>Total Number of Students using Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Watershed Model</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Water Monitoring Kits</td>
<td>2</td>
<td>400</td>
</tr>
<tr>
<td>Incredible Journey Kit</td>
<td>3</td>
<td>100</td>
</tr>
<tr>
<td>Total: 5</td>
<td>Total: 500</td>
<td></td>
</tr>
</tbody>
</table>

“The lessons were very good and easy to use. They were set up in an engaging and relevant way for the students!”

-Phillip Raskin / Peoria Elementary
Aurora Public Schools Partnership - New Fifth Grade Water Science Unit

During the summer of 2021, Aurora Water EE&O was invited to partner with Aurora Public Schools on a new water science unit for all 5th graders to be implemented in the fall of 2021. Aurora Water provided guidance, supplemental curriculum and facts about Aurora Water to enhance the 24-lesson unit and provide the local background and Aurora Water connections. All of our programming for fifth grade students was aligned with the curriculum including classroom presentation, videos, supplemental activities and field trips. During the 2021-2022 school year the team worked with 5th grade teachers to provide expert speakers, curriculum support and materials.

Excerpt from Aurora Public Schools fifth grade water unit.
**Leaders as Readers Program**
Leaders as Readers is an Aurora Public Schools (APS) program where community members are invited into the classrooms to read stories to the students. With limited access for guests to schools this school year, APS asked community members to create short videos of them reading a story that could be shared with students. Aurora Water participated providing a story about water in both English and Spanish. A total of 40 stories were read by local celebrities, law enforcement officials, firefighters and principals. Links to the stories were available to all the APS teachers through a newsletter.

**Youth Education Program Summary:**
The number of students reached with our youth education program has grown exponentially over the last 28 years from 500 students reached in 1994 to 17,408 in 2020 and remained steady from the previous year at 10,109 in 2022. The 2021-2022 school year was unlike any other with students returning to school after a year of learning online from home. Students had a lot of catching up to do and teachers shared that the year was extremely difficult. Although students were back in schools, guests were not allowed to visit schools for the majority of the year. The EE&O team worked with these challenges and continued to conduct programs virtually engaging students in learning about water.

The following Aurora Water Youth Education Program Map and History Charts show the growth of programs over time. From creating and implementing programs that are brought into schools such as classroom and assembly presentations that meet Colorado Academic Standards, providing opportunities for students to explore the topic of water through interesting and memorable field-trip experiences, to new virtual programming for remote learning, Aurora Water is a leader in Youth Water Education and continues to inspire students creating a more “water literate” community for the future.
Forests to Faucets I & II
The Forests to Faucets Continuing Education Workshops are designed to provide Aurora teachers with an in-depth education about water and water-related issues. This year marks the 17th year for Forests to Faucets and year six for Forests to Faucets II. This very successful program for teachers is conducted by Aurora Water and Aurora Parks, Recreation and Open Space.

In Forests to Faucets: Aurora’s Water Resources teachers explore topics such as where our water comes from, how our water is treated and the importance of a healthy watershed. The program also includes educating teachers about the importance of conservation and making the connection between clean water and a healthy watershed.

Forests to Faucets II is designed to provide Aurora teachers with an in-depth education about water conservation and climate change related topics. 2022 was the sixth year of the program. In this workshop, teachers explore topics such as the history of the area and why people settled here, the natural vegetation of the plains, our current and future water availability, projections on population and its’ impact on water, the effects of climate change on Colorado water and the various programs offered by our water conservation department.

Over the past 17 years, the Forests to Faucets teacher workshops have allowed us to create relationships with Aurora teachers greatly increasing participation in our other youth education outreach programs. We particularly saw an increase in our classroom presentations, assemblies and field trip programs at the Aurora Reservoir. Since the beginning of our teacher workshops, our youth education programs have steadily increased each year. Teachers who attended these workshops this year will teach water concepts to over 1,000 students in Aurora during the next school year. Forests to Faucets teachers have also invited us into their classrooms and spread the word amongst their colleagues about our programs. We have reached thousands of Aurora students each year with our overall youth education programs thanks in great part to our connections with teachers who have attended Forests to Faucets.

Forests to Faucets Summary (July 19-21, 2022)
The three-day professional development training program is free for Aurora educators and provides interactive curriculum for participants to bring water concepts back to the
classroom. Aurora teachers who complete the program receive 1.5 hours of graduate level re-certification credit through the Colorado School of Mines. They also receive “Project Learning Tree” and “Water Education for Teachers” curriculum guides and materials.

The workshop was held at the Morrison Nature Center at Star K Ranch, a perfect facility for gathering with access to additional outdoor settings for workshop activities. This year’s program was facilitated by Joy Thompson with PROS and Natalie Brower-Kirton, Viviana Zavala, and Mary Dawson with Aurora Water. Shawna Crocker, retired Colorado Project Learning Tree Coordinator, was our guest facilitator and speaker on day one.

Participants
13 teachers attended the workshop. In addition, one Aurora Parks, Recreation & Open Space Naturalists who joined the workshop.

Teachers who attend the workshop with others from their school are more likely to implement what they have learned from the workshop. In order to encourage more than one teacher from a school to attend, a free Water Quality Monitoring Test Kit was provided to the school if two or more teachers attended.

Participants in the 2022 workshop will work with more than 1,000 students during the 2021-2022 school year. The following schools and organizations were represented at the training:

<table>
<thead>
<tr>
<th>Elementary School</th>
<th>Middle School</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXL Academy</td>
<td>Horizon Community</td>
<td>Academy</td>
</tr>
<tr>
<td></td>
<td>Laredo</td>
<td>Smoky Hill</td>
</tr>
<tr>
<td>Buffalo Trail</td>
<td>Newton</td>
<td>Vista Ridge</td>
</tr>
<tr>
<td>Dakota</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slavens K-8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Promotion
The training was advertised in a variety of ways. The most effective method was an email sent to all teachers who have participated in other programs with Aurora Water. The second was a personal invitation to teachers who participated in our 2020-2021 school programs. Third was notification through the school districts’ Science Curriculum Coordinators and Professional Development Office to all teachers in Aurora Public Schools and Cherry Creek Schools. Past participants were asked to help us spread the word and five participants applied based on their recommendations. A flier was sent to all Youth Water Festival teachers and the training was also listed in the Colorado School of Mines catalog.

Workshop Schedule
Training on the curriculum guides was mixed with field trips and hands-on activities. Please see Appendix C for a detailed agenda and evaluation data for the workshop.

Forests to Faucets II Summary (July 26, 2022)
This one-day workshop is free for Aurora educators and provides interactive curriculum for participants to take concepts back to their classrooms. Aurora teachers who complete the program receive .5 hours of graduate level re-certification credit through the Colorado School of Mines. They also receive “Water Education for Teachers” (if not previously attended a WET workshop) and the “Project WET Climate Resilience Workbook”. The workshop was held at the Aurora Reservoir in the Senac Nature Center.
Participation and Promotion

A total of 10 teachers attended the training. All the teachers work in the city of Aurora in either Aurora Public Schools or Cherry Creek Schools. The workshop was promoted to past Forests to Faucets attendees.

Participants in the 2022 workshop will work with more than 1,000 students during the upcoming school year. The following schools and organizations were represented at the training:

<table>
<thead>
<tr>
<th>Elementary School</th>
<th>Middle School</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalo Trail</td>
<td>Horizon Community</td>
<td>Academy</td>
</tr>
<tr>
<td>Dakota</td>
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<td>Cherokee Trail</td>
</tr>
<tr>
<td>Slavens K-8</td>
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<td>Grandview</td>
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<td>Eaglecrest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smoky Hill</td>
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</tbody>
</table>

This year’s program was facilitated by Joy Thompson with Aurora Parks, Recreation and Open Space, and Natalie Brower-Kirton, Viviana Zavala, Mary Dawson and Sherry Meschko with Aurora Water. In addition, powerful and informative speakers and presentations rounded out the program including:

- James DeHerrera, Aurora Water Project Engineer, presented on Water Master Planning.
- Brandi Honeycutt, Colorado Department of Public Health & Environment, presented on reclaimed and graywater.

Please see Appendix D for workshop agenda and evaluation information.
Aurora Public Schools 5th Grade Teacher Water Workshop (August 1-2, 2022)

The team put together a new workshop this summer specifically for Aurora Public Schools (APS) 5th Grade Teachers. The workshop was designed to provide Aurora Water specific background information for teachers to enhance their new science unit on water. Since the unit begins with the question, “What happens to the dirty water when it goes down the drain?” the workshop began with a tour of Metro Water Recovery on day one. On day two, teachers explored part of the Aurora Water Supply System visiting Strontia Springs Reservoir and Dam and Aurora Rampart Reservoir. The workshop concluded with a tour of the Wemlinger Water Treatment Facility and the Aurora Water Quality Lab. Throughout the workshop, teachers learned Project WET curriculum activities that align with their water unit along with resources available from the EE&O team.

Participation & Promotion
While only four teachers attended the new workshop, the small group was conducive for individual questions, lesson planning and sharing. Participants in the workshop will work with over 200 5th grade students each year. Moving forward the workshop will be moved to late July to avoid being so close to the start of school. This will also allow for new teachers to the district to take the workshop.

In addition to contacting teachers via email the workshop was advertised by the APS Science Coordinator within the district.

Please see Appendix E for workshop agenda and evaluation information

<table>
<thead>
<tr>
<th>Elementary Schools Represented</th>
<th>APS 5th Grade Teacher Workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dalton</td>
<td></td>
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<tr>
<td>Laredo</td>
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<tr>
<td>Murphy Creek</td>
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<tr>
<td>Vista Peak</td>
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</tbody>
</table>
**Community Education and Outreach**

**Online Water Conservation Classes**

This year the EE&O team partnered with our water conservation team to re-create some of their pdf formatted conservation classes into online courses. These courses are more interactive and have the ability to test course takers with intermittent quizzes. The goal of our water conservation classes for residents is to help our community members understand the importance of water in our semi-arid state by using educational tools to demonstrate tangible ways to conserve water. In 2020 the EE&O team created an online course using Articulate 360 software. The first course to be offered was “Introduction to Water-wise Landscaping.” For 2021 “Sprinkler System Tune-Up” was created using the Articulate 360 software.

*Second Conservation Online Course built with Articulate 360 Software.*
Community Outreach Events and Projects

Events
Due to the uncertainty of the pandemic, many city events were canceled or offered virtually in 2021-2022. The EE&O team supported smaller events while adhering to COVID protocols. We participated in Earth Day at Aurora Reservoir and had the opportunity to communicate with over 350 attendees. Over 150 people learned about Aurora Water at the team’s booth at the Trick or Treat Nature Trail event in October. The team also participated in Teacher Appreciation Night at the Aurora History Museum which was attended by 20 Aurora educators. In addition, team members assisted with Aurora pop up events throughout 2021-2022 including the Forth of July event and Global Fest and provided attendees with water bottles and information about their water.

Dog Waste Bag Distribution
As part of our stormwater pollution prevention outreach the EE&O team distributed over 450 dog waste bag dispensers to the Aurora Animal Shelter who in turn handed them out at animal adoption events throughout the city as well as at the shelter during the pandemic.

Trumbull Experimental Forest
For more than 15 years, Aurora Water’s Education and Outreach staff have utilized Trumbull Forest as an outdoor classroom to inform teachers participating in Forests to Faucets the importance of protecting our source water and restoring the threatened areas of the Upper South Platte Watershed.
**Future Projects**

The Aurora Water Environmental Education and Outreach Team continues to evaluate and improve water education programming in the City of Aurora. The following projects are an example of potential future programming that the team is developing.

**Aurora Water Course**
Designed as an opportunity for Aurora residents to learn more in-depth information about Aurora Water and Colorado water issues, Aurora Water Course will provide a series of educational opportunities for interested community members. Classes, online courses and tours will round out the experience. Aurora’s Water Course will align with all ten of the Statewide Water Education Action Plan’s Outcome Goals.

**Careers in Water Program**
The EE&O team plans to continue to expand the career program between Aurora Water and Aurora’s school districts to include other high schools in the service area. Work will begin on exploring how Aurora Water can support apprenticeship opportunities through local trade schools and community colleges creating a clearer path for Aurora students to join the water field.

**Urban Water Cycle** – An urban bicycle tour demonstrating the importance of our stormwater system. Partnering with the Barr Milton Watershed Association and Water Education Colorado, the future outreach opportunity will include education curriculum regarding non-point source pollution, run-off control measures/best practices, and how our every-day activities contribute to water quality issues downstream.

**Additional Virtual Classroom Presentations**
For the 2022-2023 school year the team is working on rounding out our virtual water presentation offering by adding a virtual version of “Water Around the World” for 6-8 graders.

**Activity Booklet for Preschool-1st Grade Learners**
For the next school year the team plans to put together a new activity booklet specifically for preschool through 1st grade students to compliment our presentations for younger learners.

**Expanded Aurora Water Supply Tours (in town)**
The team plans to incorporate more in-town water supply and facilities tours for the community into upcoming programs for high school students and adults.
Appendices

Appendix A: Youth Education Program Assessment/Evaluation Data

Conservation Capers

Students who took the online course answered the survey. 100% of students who responded to the survey could list at least two new things they will do to conserve water at home.

Students were asked to write about where their water comes from. This word cloud summarized their answers:

Q4 Where does our water come from?

![Word Cloud Image]

What is the name of the last reservoir before we clean the water and send it to your home or school?

![Bar Chart Image]
What is the difference between a reservoir and a lake?

- A reservoir is bigger
- A reservoir is man-made and a lake is natural
- A lake has fish and a reservoir does not

What is a drought?

- It is when a reservoir does not have enough water
- It is when it snows more than it rains
- It is a period of time when an area does not get a lot of precipitation
What is a watershed?

- An area of land where water drains to a bigger body of water
- A shed that stores water
- A period of time when an area receives a lot of precipitation

What does GPM stand for?

- Gallons Per Minute
- Gallons Per Measurement
- Gallons per Millisecond
Water Around the World

100% of students were able to list three places where people around the world can get access to water. 100% of students could also list five ways they can conserve water.
Where do people in Uganda get their water?

Where do people in India get their water?
Where do people in Aurora get their water?

- Mountains, reservoirs, pipes: 90.00%
- Bore holes and wells: 10.00%
- Oceans and rivers: 0.00%

Which is not part of the process in Aurora to get water to homes and schools?

- Mountain snow melt: 10.00%
- Pipes: 0.00%
- Rivers: 0.00%
- Trucks: 90.00%
- Reservoirs: 0.00%
Uganda gets 52 inches of precipitation in a year and India gets 25 inches in a year. How much water does Aurora get in a year?

How much water do people in Aurora use on average in a day?
Water & Weather
100% of students could list something new they learned from the presentation and at least two ways to conserve water.

2. What tools are used by the water department to measure the weather:

What is the main source of Aurora’s Drinking Water?
Appendix B: Teacher Survey Data - Youth Education Programs

What type of presentation did you have?

- In person: 10.00%
- Live Virtual Presentation (synchronous): 90.00%
- Virtual Presentation Link (asynchronous): 0.00%
Please rate the Education representative on their professionalism and customer service on a scale of 1 to 5, with 1 being very poor and 5 being excellent.

Would you invite us to present in your classroom/school again?
Q6 Please rate the following on a scale of 1 to 5, with 1 being very poor and 5 being excellent.
Appendix C: Forests to Faucets 2022 Agenda and Evaluation

**Forests to Faucets: Aurora’s Water Resources**

**July 19-21, 2022**

Morrison Nature Center at Star K Ranch
16002 E. Smith Rd., Aurora, CO 80011

**Tuesday, July 19: Forested Headwaters *8:00-5:30 p.m.*

8:00 am  Meet at Morrison Nature Center - Registration

Aurora’s Water Supply

Drive to mountains, Guest Speakers: Forest Fire History and Impacts on the Watershed. Hike, watershed activities and water quality monitoring

12:00 pm  Lunch- Pine Valley Ranch Park

2:00 pm  Hike in Trumbull Experimental Forest, water quality monitoring

5:30 pm  Return to Morrison Nature Center at Star K Ranch

**Wednesday, July 20: The Urban Watershed *8:00-5:00 p.m.*

8:00 am  Meet at Morrison Nature Center

Project WET/PLT - watershed and water pollution prevention activities

10:30  Tour – Binney Water Purification Facility

12:00 pm  Picnic at Aurora Reservoir

Introduction to water quality monitoring and biological/physical/chemical assessments of Aurora Reservoir

Visit the Senac Nature Center at Aurora Reservoir

5:00 pm  Return to Morrison Nature Center at Star K Ranch

**Thursday, July 21: Aurora Water *8:00-5:00 p.m.*

8:00 am  Meet at Aurora Municipal Building – Aspen Room – 2nd Floor

PLT/Project WET: Water Conservation

9:45 am  Tour of Sand Creek Wastewater Treatment Plant

11:15  Tour of Aurora Municipal Center Xeriscape garden

1:00  Lunch

2:00-3:00  Project WET/PLT-activities
3:30-5:00  Aurora Water’s Education Resources
Colorado School of Mines paperwork, evaluation and wrap up

Forests to Faucets Evaluation Data

Participant Comments:

General Teacher Comments:
- “I loved learning about where the water I use at home comes from. In my 29 years of living I’ve never thought about this so I am excited to educate students.”
- “Good resources and modeling by instructors.”
- “Everything was fantastic.”
- “This was wonderful! So well organized and a great use of my time as a teacher and resident of Aurora!”
- “This workshop was very welcoming because the facilitators made sure of that. Answered all my questions.”

The best features of this workshop were:
- “Hands-on!”
- “The games and competition.”
- “The instructors.”
- “The interactive activities, cheerful facilitators, and guides.”
- “Great instructors!”
- “Engaging facilitators & enthusiastic participants.”
- “Our trips to the mountains.”
- “Hands-on experience, observation and instruction.”
- “The diversity of the activities! I appreciated the book activity and the field trip opportunity.”
- “The tours! It was so great to see first hand how our water is handled and just how far away it comes from!”
- “The games and how to facilitate them.”
- “All of the fun activities and the food! The facilitators were hilarious!”
- “Hikes, activities, discussions
- “Facilitators”
- “Hands-on activities”
- “Being outdoors, participating in the activities”
Forests to Faucets Participant Survey results:

Participant Pre/Post Test Results:
The following questions were asked prior to the workshop and at the completion:

1. In what watershed do you live?
2. Where does your drinking water come from?
3. How many inches of precipitation does Aurora receive annually?
4. What is non-point source pollution?
5. What percentage of water worldwide is available for human use?
6. How many inches of snow does it take to make one inch of water?
7. What percentage of Aurora’s water comes from groundwater?
8. What percentage of our bodies is made up of water?
9. What percentage of Colorado’s water goes toward agriculture?
10. What is one way you currently conserve water at home?

100% or the teachers improved their water knowledge from the pre-test to the post test.
Pre-Test Average Score: 76%
Post-Test Average Score: 99%

Appendix D: Forests to Faucets II 2022 Agenda and Evaluation

Forests to Faucets II Agenda

<table>
<thead>
<tr>
<th>Event</th>
<th>Duration</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Introductions / Goals of workshop – VIVIANA</td>
<td>20 min</td>
<td>8-820</td>
</tr>
<tr>
<td>Transition to get bikes /Complete Waivers – JOY</td>
<td>10 min</td>
<td>820-830</td>
</tr>
<tr>
<td>Bike Ride/ Reservoir, History Talk &amp; Picture Game JOY &amp; VIVIANA - 50 min Alternative: Teachers will walk to and learn about Aurora Reservoir retention ponds/ History Talk- NITALIE</td>
<td>50 min</td>
<td>830-920</td>
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<tr>
<td>Break</td>
<td></td>
<td>920-930</td>
</tr>
<tr>
<td>James DeHerrera / Aurora Water/ Water resources &amp; wastewater</td>
<td>30 min</td>
<td>930-1030</td>
</tr>
<tr>
<td>1. River Crossing / Project WET Pg. 487 / NATALIE</td>
<td></td>
<td>1030-11</td>
</tr>
<tr>
<td>2. 8-4-1, One for All / Project WET Pg. 299 – WET Guide Pg. 24 VIVIANA</td>
<td></td>
<td>11-1130</td>
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<tr>
<td>Adrienne Sedlak / CSU Spur / Campus info</td>
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<td>1130-12</td>
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<tr>
<td>LUNCH</td>
<td></td>
<td>12-1230</td>
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<tr>
<td>3. Super Sleuths / WET Guide Pg.17 / JOY</td>
<td></td>
<td>1230-1</td>
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<tr>
<td>Brandi Honeycutt – Colorado Dept. of Public Health / Gray water &amp; re-use</td>
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<td>1-2</td>
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<tr>
<td>4. Climate Change Talk - MARY</td>
<td></td>
<td>2-230</td>
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<tr>
<td>BREAK</td>
<td></td>
<td>230-240</td>
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<tr>
<td>5. Hangin’ Together / Project WET Pg. 19 MARY</td>
<td></td>
<td>240-3</td>
</tr>
<tr>
<td>6. Boreal Forest / WET Guide Pg. 34 - JOY</td>
<td></td>
<td>3-330</td>
</tr>
<tr>
<td>7. Watershed Snack / VIVIANA</td>
<td></td>
<td>330-4</td>
</tr>
<tr>
<td>Climate change – innovations, current projects, to do’s - VIVIANA</td>
<td></td>
<td>4-430</td>
</tr>
<tr>
<td>Wrap up – CSW credit info, issue certificates, return checks, assign hw - VIVIANA</td>
<td></td>
<td>430-5</td>
</tr>
</tbody>
</table>
Forests to Faucets II Evaluation

Participant Comments:

General Teacher Comments:
- “Material provided are great. “
- “It was a blast learning about our water resources.”
- “Overall very good!”
- “Engaging facilitators and relevant materials.”
- “Great resources.”
- “Well organized.”
- “Great workshop.”
- “All of the activities and professional speakers info will be used directly and indirectly with all content areas.
- “I loved the bike ride! I appreciated the range of activities – excellent breadth.”
- “Wonderful – well organized, easy to use.”

The best features of this workshop were:
- “Everything!”
- “Learning about the different programs offered to students”
- “Interactivity with activities.”
- “The instructors – great group.”
- “The facilitators and being outside.”
- “Great info from speakers/presenters.”
- “The flow between the professional speakers and applicable activities.”
- “Bike ride, participating in activities.”
Participant Survey results:

2022 F2F2 Teacher Participant Evaluation Survey

- The workshop met my needs
- The facilities and ammenities (setting, breaks, etc.) were suitable for the purposes of this workshop
- This workshop provided me with helpful strategies to integrate Project WET/ WILD OR PLT activities into my curriculum
- The information, strategies and insturctional methods shared during the workshop were helpful to me
- The workshop was well organized
- The facilitators were enthusiastic and pleasant
- The facilitators were well prepared
- The resource materials provided will be helpful when I teach about the environment
- The workshop activities were relevent to me
- Project WILD/WET/PLT materials are appropriate for my needs
- Objectives of the workshop were accomplished
- The objectives of the workshop were clearly stated

![Survey Results Chart]

1 - Strongly Disagree  2  3  4  5 - Strongly Agree
Appendix E: Aurora Public Schools 5th Grade Teacher Workshop 2022
Agenda and Evaluation

**APS 5th Grade Teacher Water Workshop**

**Where Do We Get Clean Water?**

**August 1-2, 2022**
Aurora Municipal Center
Aurora Room- 1st Floor
15151 E. Alameda Pkwy.
Aurora, CO 80012

**Monday, August 1: What Happens When Water Goes Down the Drain?**

8:00-5:00 p.m.

7:00-8:00:
- Ice for drinks from AMC Ice machines
- Ice Drinks and Lunch Food in Coolers
- Set out breakfast snacks- granola bars etc.
- Elani to deliver pastries & coffee- 7:30 a.m.
- Tables set up
- Check In/Registration list & Name tags
- Tote Bags with: Pens/Sticky Notes/Gifts/Water Bottles/Orange Notebooks/Agenda
- Pre-test (Sherry?)
- Orange Aurora Water Notebooks-Water Journals
- Set up Computer/Projector for Water Unit Storyline & Wipes in the Pipes video
- Objectives on Flip Chart Paper
- Sticky notes for books

8:00 am
Meet at Aurora Municipal Building- Aurora Room- 1st Floor
- Breakfast Snacks & Coffee- From City Cafe
- Registration/Nametags/

**Natalie**- Introductions, Name Game Ice Breaker
- Water Unit Story Line
- Wipes in the Pipes Video

8:30-9:00
All- Load Van & Drive to Central

**LESSON 1- How do we clean dirty stuff/water?**
**LESSON 2- Where does all the waste that goes down the drain go?**

9:00-9:30
Tour- Aurora Water Central Facilities
- Tools of the Trade- Aurora’s Wastewater Team Demo
  Peter Gonzales & Kirk Skogen

9:30-10:00
- Meter Shop
  Ben Sentanda & Jose Velazquez Barron

10:00
Load Van & Drive to Metro
LESSON 6- Does the wastewater treatment plant filter out the particles?
LESSON 7- Where does the water from the wastewater treatment plant go?

10:30-12:00 Tour of Metro Water Recovery
(Please Bring ID & wear closed toe shoes)
-Wastewater Treatment

12:00-12:30 Load Van & Drive to AMC

12:30-1:30 Lunch at Aurora Municipal Center - Qdoba

1:30-2:00 Natalie- Introduce Project WET Guide, History, Code for Portal
Project WET Hike the Guide Activity

LESSON 3-5- Dirty Mixtures, Dissolving Mixtures

2:00-3:00 Mary- H2O Olympics- Event 1, 2, 5?

Mary- Molecules in Motion p. 33

Mary- Hangin’ Together p. 19- Part III Charades Game

3:00-3:15 Break

2:45-3:30 Sherry- Is there Water on Zork?

LESSON 10- How much of Earth’s water is salty?

3:45-4:00 Sherry- Drop in the Bucket

LESSON 8- How does water flow and where does it go once it’s in the river?

3:45-5:00 Natalie- Seeing Watersheds p. 187 with Coloring Sheets
Legend of the Divide Maps/Sticker Activity
Relate to AW Watershed maps

Other cool tools:
Project WET Interactives@ discoverwater.org
https://www.discoverwater.org/explore-watersheds/
How’s My Waterway? https://www.epa.gov/waterdata/hows-my-waterway
Tuesday, August 2: Where Do People Get Their Drinking Water From?
8:00-5:00 p.m.

7:00-8:00:
  - Ice for drinks from AMC Ice machines
  - Set out breakfast snacks- granola bars etc.
  - Elani to deliver burritos & coffee- 7:30 a.m.
  - Check In/Registration list & Name tags
  - Set up Computer/Projector for Aurora’s Water Ed Resources Presentations
  - Objectives on Flip Chart Paper
  - Activity List

8:00 am  Meet at Aurora Municipal Building- Aurora Room- 1st Floor
          - Breakfast Snacks & Coffee- Burritos from City Cafe

8:10-8:20  Natalie- My Watershed wrap up w/ Large Supply Floor Map

LESSON 12- Where do people get their drinking water from?
8:20-8:45  Natalie- Facts Behind the Faucet- Aurora’s Water Supply w/ Storymap

8:45-9:30  All- Load van and drive to Strontia

9:30-12:00  Tour – Strontia Springs Dam & Reservoir, Aurora Rampart Reservoir

12:00-12:45  Picnic Lunch at Sharptail Ridge Open Space

LESSON 22- What happens to water that becomes storm drain runoff?
4:00-4:30 pm  Natalie- Aurora Water Environmental Education & Outreach Resources for 5th grade

LESSON 23- What are some problems we’ve identified in answering our driving questions?
4:15-4:30  Viviana- Action Project Ideas Presentation

LESSON 24- How can we design solutions to water-related problems?
4:30-5:00 p.m.  Natalie- Workshop Paperwork
Participant Comments:

**General Teacher Comments:**
- “Facilitators were engaged and committed to their jobs.”
- “Thank you- this was great!”
- “The activity book is great and it seems to use everyday objects.”
- “Great ideas, good info, helped my content knowledge.”
- “Very hands-on, engaging and knowledgable.”

**The best features of this workshop were:**
- “The experiments and the tours.”
- “On site visits- Waterton Canyon!”
- “Field trips and talking with other teachers.”
The objectives of the workshop were clearly stated.
The objectives of the workshop were accomplished.
Project WILD/WET/PLT materials are appropriate for my needs.
Objectives of the workshop were accomplished.
The information, strategies and instructional methods shared during the workshop were helpful to me.
The workshop activities were relevant to me.
The facilitators were well prepared.
The facilitators were enthusiastic and pleasant.
The workshop was well organized.
The resource materials provided will be helpful when I teach about the environment.
The facilities and amenities (setting, breaks, etc.) were suitable for the purposes of this workshop.
This workshop provided me with helpful strategies to integrate Project WILD/WET/PLT activities into my curriculum.
The workshop met my needs.
The information, strategies and instructional methods shared during the workshop were helpful to me.
The facilitators were well prepared.
The facilitators were enthusiastic and pleasant.
The workshop was well organized.
The resource materials provided will be helpful when I teach about the environment.
The workshop activities were relevant to me.
Project WILD/WET/PLT materials are appropriate for my needs.
Objectives of the workshop were accomplished.
The objectives of the workshop were clearly stated.

1 - Strongly Disagree  2  3  5 - Strongly Agree
Education & Outreach Program Update
2021-2022 School Year
CWAC 10.11.2022

Natalie Brower-Kirton
Environmental Education and Outreach Program Manager

Driving Excellence
• We drive the excellence of Environmental Education in Colorado creating programs that impact behavior change.

Fostering Collaboration
• We foster water education in Aurora through professional affiliations, partnerships and collaborative projects both internally, within other City of Aurora Departments and with external organizations.

Educating the Community
• We educate the community on multiple aspects of water at all levels through programs that lead to the efficient use and protection of water.

Mission: To provide consistent, creative and impactful education and outreach programs that promote water literacy, water conservation, water pollution prevention, careers in water and water stewardship in Aurora.
The Aurora Water Environmental Education and Outreach Team was honored to receive the 2021 Project WET Educator of the Year Award.

- Each of our team members are trained Project WET facilitators
- Over thirty years of combined experience using Project WET materials
- Programs and presentations all contain Project WET lessons and activities
- Facilitate annual Forests to Faucets Teacher workshops in which teachers learn how to use Project WET activities

STATEWIDE WATER EDUCATION ACTION PLAN (SWEAP)

“Colorado’s first statewide education action plan designed to support the Water Plan’s goal of sustainable water by 2050.”

SCOTT WILLIAMSON Education Programs Manager Water Education Colorado
WHY SWEAP?

The Colorado Water Plan and the Water Educator Network called for a common vision for water education.

Colorado Water Plan
Chapter 9.5: Outreach, Education and Public Engagement

“To expand outreach and education efforts that engage the public to promote well-informed community discourse and decision making regarding balanced water solutions.”

Empower Coloradans to take an active role in their communities and make informed decisions about critical water issues.

- A Water Education Guide for Colorado
- Plan for reaching the “Outreach, Education and Public Engagement” goals of the Colorado Water Plan – Sustainable Water 2050
- Aurora Water
  2019-Core Collaborator in the creation of the Plan
  2020-Endorsed
  2021-Committees to evaluate and implement
  2022-Comments on CO Water Plan Revisions related to Water Education
- Programming that supports the plan
EDUCATION CONTINUUM

Types of SWEAP outcomes and related disciplines...

<table>
<thead>
<tr>
<th>TYPE OF OUTCOME</th>
<th>DISCIPLINES AND STRATEGIES</th>
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<tr>
<td><strong>AWARENESS</strong></td>
<td><strong>PUBLIC RELATIONS</strong></td>
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<td>Awareness is the first step toward</td>
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1. The proportion of Coloradans in each river basin who can identify how water supports their quality of life, as well as the threats to and potential solutions for a sustainable water supply increases.

2. The proportion of Coloradans in each river basin who can articulate at least three “Critical Water Concepts” increases.

3. The proportion of Coloradans in each river basin who report confidence in having the knowledge necessary to take an active role in water stewardship in their community increases.

4. The proportion of Coloradans in each river basin who report confidence in having the skills necessary to take an active role in water stewardship in their community increases.

5. Participation in community discourse and decision processes about water at the state, regional and local levels increases.

6. Voters have access to factual information that addresses potential impacts to sustainable water resources in relevant issue areas.

7. The proportion of Coloradans in each river basin that are demonstrating sustainable water behaviors increases.

8. Where relevant, local and state policies and practices are supportive of advancing statewide water literacy.

9. Where relevant, local and state policies, regulations, and practices demonstrate a consideration of impacts on sustainable water resources.

10. Water decision-making bodies are increasingly representative of the demographic makeup of the area they serve.

More details on draft metrics for each outcome can be found on the SWEAP website under “Measuring Success.”
## Aurora Water EE&O Programs & SWEAP Outcomes

<table>
<thead>
<tr>
<th>Aurora Water Environmental Education &amp; Outreach (EE&amp;O)</th>
<th>Statewide Water Education Action Plan Outcomes Alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving Excellence in Water Education</td>
<td>1  2  3  4  5  6  7  8  9  10</td>
</tr>
<tr>
<td>Aurora Public Schools 5th Grade Water Unit</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Classroom Presentations, School Assemblies &amp; Field Trips</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>MSU Theatre Project</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>H2O Outdoors</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Trumbull Experimental Forest- Outdoor Watershed Classroom</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Creating and Informed Community - Collaborating to Create Behavior Change</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Outreach &amp; Events</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>In person and Online Conservation Courses</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Pipeline: Careers in Water Program</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Professional Development- Teacher Workshops</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Aurora Water Course (Coming Soon!)</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
</tbody>
</table>

---

### WATER22

It All Starts Here

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Oct. 11, 2022 - CWAC Agenda - Page 75 of 104
EE&O Programs

Youth Education

Professional Development Workshops for Teachers

Community Education & Outreach

Future Projects

AMPLIFY WATER EDUCATION

AuroraGov.org/H2OEducation
watereducation@auroragov.org
Youth Education Programs

• Classroom Presentations
• Assembly Presentations
• Pipeline-Careers in Water
• Field Trips
• Teacher Resource Library
• APS 5th Grade Water Unit
• Leaders as Readers
Aurora Water Education Program History

Classroom Presentations
2021-2022 Virtual Water Education

New Virtual Presentations

• Aurora’s Water History Online Course

• Water Around the World Virtual Presentation
Virtual Water Supply Tour
New Data

Where does our water come from?
Aurora Water provides drinking water, sanitation, and recreation services to more than 200,000 people in Aurora, Colorado.

New!

Watershed Pen Pals
Connecting through Water

Continental Divide
The Great Divide State/Canada Border
The Pacific Crest Trail

Now, you will write a letter to a 5th grader across the state!
Theme: What is your favorite way to use water?
<table>
<thead>
<tr>
<th>Presentation/(Grade)</th>
<th>Total Number of Presentations</th>
<th>Students in Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>If I was a Fish (P-1st)</td>
<td>26</td>
<td>872</td>
</tr>
<tr>
<td>Storytime with Aurora Water (P-2)</td>
<td>11</td>
<td>288</td>
</tr>
<tr>
<td>Sunny Takes a Walk on the Water Side (Pre-K)</td>
<td>16</td>
<td>432</td>
</tr>
<tr>
<td>Water Heroes (1-3)</td>
<td>21</td>
<td>806</td>
</tr>
<tr>
<td>Incredible Journey (1-5)</td>
<td>12</td>
<td>300</td>
</tr>
<tr>
<td>Water &amp; Weather (2)</td>
<td>37</td>
<td>1,226</td>
</tr>
<tr>
<td>Conservation Capers (3-8)</td>
<td>19</td>
<td>462</td>
</tr>
<tr>
<td>Water: Keep it Clean (3-8)</td>
<td>23</td>
<td>678</td>
</tr>
<tr>
<td>We All Live Downstream (5-8)</td>
<td>5</td>
<td>125</td>
</tr>
<tr>
<td>Water Pen Pals (5)</td>
<td>1</td>
<td>203</td>
</tr>
<tr>
<td>Water Around the World (5-6)</td>
<td>31</td>
<td>654</td>
</tr>
<tr>
<td>Conservation Challenge (6-8)</td>
<td>5</td>
<td>300</td>
</tr>
<tr>
<td>Careers in Water (6-12)</td>
<td>16</td>
<td>390</td>
</tr>
<tr>
<td>Muck Up- Clean Up (9-12)</td>
<td>4</td>
<td>100</td>
</tr>
<tr>
<td>Climate Change &amp; Water (9-12)</td>
<td>21</td>
<td>940</td>
</tr>
<tr>
<td>Total:</td>
<td>248</td>
<td>7,776</td>
</tr>
</tbody>
</table>
Virtual & In Person School Assemblies 2021-2022

<table>
<thead>
<tr>
<th>Assembly</th>
<th>Total Number of Assemblies</th>
<th>Students in Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water in the Ol' West</td>
<td>4</td>
<td>335</td>
</tr>
<tr>
<td>Sunny Takes a Walk on the Water Side Puppet Show Assembly NEW!</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>Facts Behind the Faucet</td>
<td>17</td>
<td>1,080</td>
</tr>
<tr>
<td>Total:</td>
<td>22</td>
<td>1,445</td>
</tr>
</tbody>
</table>

Pipeline: Careers in Water
Field Trips

Aurora Reservoir

Aurora Youth Water Festival & Virtual Festival 2022
Virtual Youth Water Festival

8 schools  9 teachers  251 students  1330 surveys received
H2O Outdoors

Field Trips 2021-2022

<table>
<thead>
<tr>
<th>Field Trip</th>
<th># of Presentations</th>
<th># of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2O Outdoors Water Camp (High School)</td>
<td>7</td>
<td>119</td>
</tr>
<tr>
<td>Water Festival Virtual</td>
<td>10</td>
<td>251</td>
</tr>
<tr>
<td>Water Festival</td>
<td>10</td>
<td>350</td>
</tr>
</tbody>
</table>
• Teacher Resource Library
• APS 5th Grade Water Unit
• Leaders as Readers
Forests to Faucets I & II
Teachers Exploring the South Platte Watershed & Aurora Water Wise Garden

July 19-21
• 3 days
• Different locations
• PLT & Project WET curriculum
• Watershed concentration

July 26
• 1 day
• Aurora Reservoir
• Project WET curriculum
• Climate Change concentration
The curriculum & activities were well presented. I loved “Seeing Watershed” & am excited to try it.

The information presented expanded my knowledge of water & water-related activities through hands-on, excellent activities. Received wonderful resources. Excellent class!

The instructors were great. They all brought their expertise and made the 3 days fun and interactive.

Great job adopting materials to social distancing and COVID-19.

Great activities to deepen students understanding of water conservation.

The instructors are fabulous and fun ladies.

Fabulous job – appreciate your knowledge & wealth of resources.

The engagement within activities is amazing. Hands-on experiences make this workshop 😊.
Aug 1-2

New!

APS 5th Grade Teacher Workshop

- 2 days
- Different locations
- PLT & Project WET curriculum
- Watershed concentration

Community Education & Outreach
Creating an Informed Community

Outreach & Events
Classes

Events
Trick or Treat Nature Trail- October
Earth Day @ Aurora Reservoir- April
Citywide Events
Annual Report - By the numbers
2021-2022 School Year

• 2 Youth Water Festivals- in person & virtual
• 3 Teacher Workshops
• 17 Presentations P-12 – virtual
• 100% of Teachers would have us back again
• 330 presentations
• 500+ Dog waste bags distributed
• 708 students worked with the Virtual Water Tour
• 10,304 students learned about water
Future Projects

• Aurora Water Course
• Careers in Water Program
• Urban Water Cycle Tour
• Activity Booklet for P-1st Grade
• Expand in town tours for additional audiences
MEMORANDUM

To: Citizen’s Water Advisory Committee

Through: Marshall P. Brown, General Manager, Aurora Water
         Todd Brewer, Deputy Director of Water Quality & Treatment, Aurora Water

From: Sherry Scaggiari, Manager of Environmental Permitting

Date: October 11, 2022

Subject: Per- and Polyfluoroalkyl Substances (PFAS) Update

Summary:
An informational brief was provided to the committee during the June 2020 meeting to provide background surrounding the PFAS compounds and to describe federal and state efforts surrounding PFAS contamination on a national and state scale. Recent changes in the Health Advisory levels from the EPA and the Colorado Department for Public Health and Environment’s implementation of those levels will be discussed. Potential treatment options and the department’s communications strategy will also be discussed.

Question:
No action required. Informational item only.
Per- and Polyfluoroalkyl substances (PFAS) or “forever chemicals” are a group of manufactured (manmade) chemicals that have been used in industrial and consumer products since 1940s.
PFAS

- Most common PFAS compounds are Perfluorooctanoic Acid (PFOA) and Perfluorooctanoic Sulfonate (PFOS) – these are being phased out of production in the U.S. because of their risks.
- PFAS compounds (including PFOA and PFOS) have a strong carbon-fluorine bond which allows them to build up and accumulate for decades instead of break down.

Where are PFAS Commonly Found?

- Electronics
- Non-stick cookware
- Microwave popcorn bags
- Fast food wrappers
- Paints, sealants, and varnishes
- Water-resistant clothing
- Nail polish
- Shampoo and personal care items
PFAS Regulations in Colorado

• House Bills 19-1279 and 20-1119
  – Creates laws on the use, storage, distribution, and certification of firefighting foam containing PFAS chemicals (PFAS contamination of drinking water sources in El Paso, Boulder, and Adams counties is likely from AFFF)

• Senate Bill 20-128
  – Collects fees from fuel transport to fund CDPHE’s study of PFAS

• HB22-1345 Perfluoroalkyl and Polyfluoroalkyl Chemicals
  – CDPHE Policy 20-1 – Cleanwater, PFAS in discharges

Health Effects of PFAS Exposure

The affects have not been completely studied but there is evidence there are health effects.

This is why the EPA has established Health Advisory Levels or HAL for Gen-X, PFBS, PFOA and PFOS.
EPA Health Based Guidelines

- 2016 EPA health advisory for PFOS and PFOA
  - Health advisory limit was set at 70 parts per trillion (ppt) for the two compounds combined.

2022 EPA Health Advisory is:
- PFOA 0.004 ppt
- PFOS 0.02 ppt
- Gen-X 10 ppt
- PFBS 2000 ppt

These are not an MCL (maximum contaminant level) or enforceable drinking water standard. A draft proposal from the EPA is expected late 2022.

PPT – parts per what?
A number like 0.004 ppt is difficult to think about. Let’s talk about parts per trillion.

1,000 = Thousand
1,000,000 = Million
1,000,000,000 = Billion
1,000,000,000,000 = Trillion
1,000,000,000,000,000 = Quadrillion
Measurement Limitations

- Instrumentation can only measure 2 ppt as a reporting limit.
- Reporting Limits are set to quantify the number.
- Another level is called the MDL or method detection limit. This value is 0.2 ppt currently.
- Between the MDL and the RL is considered an estimated number because there is uncertainty in the actual value. We do know the compound is there.

Aurora Data on PFAS

- Source water values for PFOA+PFOS from North Campus have been from 20-30ppt.
- Finished water values have been non-detectable to 7ppt (as a total of PFOA+PFOS). More information to come.
- Aurora’s website has information on PFAS: AuroraGov.org/pfas
We will update this slide before the meeting. We are expecting finished water results soon.

### Aurora Data on PFAS

<table>
<thead>
<tr>
<th>PFAS</th>
<th>Lifetime Health Advisory Level Prior to June 15, 2022</th>
<th>Voluntary sampling (2020)</th>
<th>Lifetime Health Advisory Level as of June 15, 2022</th>
<th>Voluntary sampling (2022)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All results reported in ppt.</td>
<td>Sample 1</td>
<td>Sample 2</td>
<td>Sample 1</td>
</tr>
<tr>
<td>PFOA</td>
<td>70 (as a sum of PFOA + PFOS)</td>
<td>Not detected</td>
<td>3.2</td>
<td>0.004</td>
</tr>
<tr>
<td>PFOS</td>
<td>Not detected</td>
<td>2.1</td>
<td>0.02</td>
<td>(Interim)</td>
</tr>
<tr>
<td>GenX</td>
<td>None</td>
<td>Not detected</td>
<td>Not detected</td>
<td>10 (Final)</td>
</tr>
<tr>
<td>PFBS</td>
<td>None</td>
<td>Not detected</td>
<td>3.4</td>
<td>2,000 (Final)</td>
</tr>
</tbody>
</table>

### UCMR5

- The UCMR5 requires analysis of 29 PFAS compounds plus lithium.
- Aurora will be starting the required sampling and analysis in January of 2023 and take samples for four quarters.
- EPA says they will be publishing a rule for PFAS by the end of 2022 (before sampling occurs).
Unregulated Contaminant Monitoring Rule 5 (UCMR5)

– In evaluating contaminants for UCMR 5, EPA considered the fourth Contaminant Candidate List (CCL 4) as well as contaminants nominated by the public for potential inclusion on the fifth CCL5 and other priority contaminants.

– In addition, the National Defense Authorization Act for Fiscal Year 2020 (NDAA) specifies that EPA shall include all PFAS in UCMR 5, for which a drinking water method has been validated by the Administrator and that are not subject to an NPDWR. Accordingly, UCMR 5 includes all 29 PFAS that are within the scope of EPA Methods 533 and 537.1, as well as lithium.

Treatment options

• Three technologies effective in removing/reducing PFAS
  – Granulated Activated Carbon (GAC)
  – Ion Exchange
  – Reverse Osmosis (RO)

• Binney Water Purification Facility uses GAC
Future Treatment Options

- Griswold & Wemlinger WPF - Currently Direct Filtration
  - Exploring treatment options based on source

- “Mini-Binney” pilot plant
  - a great tool for understanding how current media and alternative media can benefit Aurora Water

Communications

- Public notification
  - Engaged with Colorado Department of Public Health and Environment (CDPHE) regarding language for public notifications
  - Working with other utilities about their public notifications

- Coordinating with Denver Water

- Communications plan focused on education and outreach.
  - Working with Community Engagement Coordinators from Housing and Community Services
Communication plan goals

Informing our communities about PFAS

- Using common vernacular, highly visible, easily accessible locations or mediums
- Spanish translation
- Aurora Water uniquely positioned to handle many of the PFAS challenges
- One Water approach and emphasizing products that contain PFAS and how to avoid them
  - PFASCentral.org/pfas-free-products

Communication plan goals

Ongoing messaging about Aurora's water quality

- 87,000 tests system wide
- Numerous awards won by Aurora Water
  - RMSAWWA Outstanding Water Laboratory (won this honor eight times)
  - All three of our water purification facilities have achieved the Phase IV “Excellence in Treatment” designation, the highest level awarded by the Partnership for Safe Water (PSW). Only utility in the country to receive this designation at three facilities.
Questions?

Thanks!

Sherry Scaggiari
Environmental Services Manager

Scaggia@auroragov.org