



# *Water Workforce* **2024 SUMMIT**

## **2024 Water Workforce Summit Report**

*Compiled by the*  
Colorado Water Center at Colorado State University

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## Introduction

Colorado is currently facing a myriad of urgent water workforce issues that are prevalent across the US. A high retirement rate of current employees; lack of diversity in the workforce; low recruitment of youth into water-related careers; few resources for career development and apprenticeship programs; and a high demand for water workforce due to the urgent need to repair our water systems and improve water management are just some of the ongoing challenges. To discuss and address water workforce needs in Colorado, the Colorado Water Center hosted the first ever Colorado Water Workforce Summit April 2-3, 2024 in Denver, bringing together water-related professionals, educators, and students.

The first day of the Summit was a conference-style event co-hosted with Metro State University of Denver at Auraria Campus. Approximately 100 people gathered on Day 1, including approximately 70 professionals and educators and 30 students ranging from high school through college. Panel sessions featured presentations and discussions on diversifying the water workforce, successful pipeline programs, and student voices and experiences. In addition, an afternoon breakout room session facilitated small group discussion on water workforce barriers, needs, and action steps around K-12 education, higher education, and apprenticeships/on-the-job training.

Day two of the Summit, hosted at the Colorado State University (CSU) Spur Campus in Denver, featured a Water Career and Education Fair designed to connect students with water-related employment and education/training opportunities. The Water Fair showcased 36 different water career and education exhibitors, with students from high schools and higher education institutions across the state in attendance. The Water Fair also featured a student/professional speed-dating networking hour in which students were paired with water professionals to ask questions, make connections, and learn about relevant career opportunities.

This report summarizes the Water Workforce Summit, shares related resources, and delineates next steps. The report contains a general overview of events, attendees, poll responses, breakout room discussions, post-Summit survey results, and recommended next steps to address water workforce needs in Colorado.

## Day 1: Water Workforce Summit (April 2, 2024)

### Summit Program & Presentations

- Click here for the full [Day 1 Agenda](#).
- Click on the speaker names in the table below to access speaker presentations.

Speakers and Presentations

Session	Speaker & Presentation Link
<p><b>Water Workforce Overview</b></p>	<p><a href="#"><u>Karen Schlatter</u></a> Colorado Water Center at Colorado State University</p>
	<p><a href="#"><u>Nona Shipman</u></a> One World One Water Center at Metropolitan State University of Denver</p>
<p><b>Diversifying Water Workforce</b></p> <p>Moderated by: Breanna González Colorado Department of Public Health and Environment</p>	<p><b>Rebecca Andrus, P.E.</b> City of Greeley</p>
	<p><a href="#"><u>Ruthie Redmond</u></a> US Water Alliance</p>
	<p><a href="#"><u>Victor Sam, P.E.</u></a> Stantec; DEI Committee Chair of Rocky Mountain Section American Water Works Association</p>
	<p><a href="#"><u>Jessica Thrasher</u></a> Colorado Water Center at Colorado State University</p>
<p><b>Pipeline Programs</b></p> <p>Moderated by: Jill Garber Colorado State University Center at Sturm Collaboration Campus</p>	<p><a href="#"><u>Mary Dawson</u></a> Aurora Water</p>
	<p><a href="#"><u>Chris Madsen</u></a> Arvada West High School; Red Rocks Community College</p>
	<p><a href="#"><u>Kaitlin Mattos, Ph.D.</u></a> Four Corners Water Center, Fort Lewis College</p>
	<p><a href="#"><u>Claude Strait</u></a> Colorado Rural Water Association</p>
<p><b>Student Voices &amp; Experiences</b></p> <p>Moderated by: Gregg Cannady DSST Public Schools</p>	<p><b>Makenzie Chesak, P.E.</b> Kimley-Horn; Young Professionals Committee Chair of Rocky Mountain Section American Water Works Association</p>
	<p><b>Leah Dory</b> Metropolitan State University of Denver</p>
	<p><b>Evani Gomez</b> Colorado Mesa University</p>
	<p><b>TR Heydman</b> Colorado State University</p>
<p><b>Dream Lang</b> Littleton Public Schools</p>	

## Breakout Room Discussion Summary

The purpose of breakout rooms with roundtable discussions was to provide a space for smaller, focused conversations to address water workforce issues in different areas. Attendees selected their breakout room theme according to their role and personal goals for the Summit. The breakout rooms were organized around themes including K-12 education, higher education, and apprenticeships/on-the-job training. Each table was given prompts for discussion, and the information below was summarized from the roundtable discussions in each group.

### Breakout Session Theme: K-12 Education

- Barriers related to getting K-12 students interested in water and water careers:
  - General K-12 school district barriers that make addressing water workforce issues difficult:
    - Low student enrollment and attendance
    - Transportation costs and personnel (to organize field trips or educational activities specific to water)
    - Teachers are restricted to required curriculum (Colorado State Standards)
    - Teacher support and time; issues with teacher recruitment and retention
  - Lack of youth awareness on water issues and exposure to nature/outdoors
  - Industry barriers:
    - Lack of funding & resources to get industry into K-12 classrooms
    - Lack of outreach personnel and clearly defined roles/time
  
- Needs related to getting K-12 students interested in water and water careers:
  - Pipeline that supports students from kindergarten through entry-level jobs in industry
  - Backwards design from industry to schools to identify skills that are lacking in water workforce
  - Buy-in and support from district-level: need curriculum designed as a pathway to degrees and curriculum connected to state standards
  - Central HUB of resources for educators and industry partners for outreach to K-12 grades
    - Ex: Project WET
  - Sustainable programs and marketing to gather and sustain interest in water careers
  - Hands-on and experiential education (in-person mobile labs), accessible for all locations (digital), and fun to engage students
  - More internship and job shadowing opportunities for students
  
- Recommended Next Steps for K-12 Education:
  - Support Career and Technical Education (CTE) Natural Resource Management and Environmental Science pathways, courses, certifications, internships, and apprenticeships; create stackable credentials
    - Ex: Chris Madsen's Water Quality Management program at Arvada West High School

- Hold more opportunities like the Water Workforce Summit to support collaboration, discussion, and to pool funding and resources
- Create a central hub of educational resources
- Scale up education opportunities in K-12 classrooms for students to get excited about water & water careers & learn about pathways into careers

Breakout Session Theme: Higher Education

- Barriers to changing higher education to meet employer's needs:
  - Some water careers are non-linear; hard to create pathways
  - Gatekeeping with professional certificate programs
  - Accessibility of higher ed programs for low-income students
  - Unpaid opportunities are not viable for students
  - Disconnect between higher ed institutions and industry
  - Non-centralized resources
- Needs to support water workforce development in higher education institutions:
  - Provide funding/stipends for students to participate in water-related programs (ex: Water Fellows)
  - Dedicated industry staff with time/support to lead outreach and training efforts
  - Facilitate connections between industry & students/educators – ex: networking opportunities at conferences
  - Storytelling opportunities (conferences, workshops, classes, podcasts) by water professionals to share experiences and their career pathways
  - Track student success/challenges with internships and jobs to better meet student needs
  - Continuing education opportunities; job shadowing opportunities
- Recommended Next Steps for Higher Education:
  - Support student attendance at water conferences and events (ex: Water Fellows Program)
  - Create low pressure conferences to engage students
  - Create and support paid internships
  - Reconsider 0-3-year experience qualifications on job postings; offer more on-the-job training opportunities & skill development for those with little to no professional experience
  - Highlight fun, exciting, and essential value of water jobs
  - Target specific non-traditional applicants
  - Bring together different job boards for one centralized resource
  - Hold weekly seminars for students with water professionals to give insights to water careers and different type of roles
  - Incorporate professional development requirements into higher education degrees (including resume writing, interviewing, etc.)
  - Create pathways to professional certifications that can build into degree programs

### Breakout Session Theme: Apprenticeships and On-the-job Training

- Barriers to developing apprenticeship programs:
  - Accessibility (qualifications, citizenship, location, funding) and lack of opportunities
  - Lack of clear communication on expectations between employers and students
  - Lack of buy-in from program stakeholders
  - Time investment required – very time consuming when done well, conflicting priorities with other job responsibilities
  - Retention issues with apprentices (turnover), which makes time/resources investment into apprenticeship program a challenge
  - Lack of experienced staff to support programs
  - HR (Human Resources) policies and safety concerns
  
- Needs to develop and implement effective apprenticeships and on-the-job training programs:
  - Beneficial for both students and employers – financial incentives
  - Flexible to support student schedule and changing demands of industry
  - Regional collaboration and community engagement
  - Mentorship programs
  - Support and establish growth mindsets/cultures
  - Establish relationships between educators and industry professionals
  - Provide training/support for organizations that are creating and running apprenticeship programs
  - Entry level positions without master's degrees
  - Outreach to students
  - Opportunities that are broad and inclusive to provide transferable skills
  - More apprenticeships/internships around social sciences and stakeholder engagement
  - Funding
  
- Recommended Next Steps for Apprenticeships and On-the-Job Training
  - Clear communication around shared expectations and end goals (ex: full time job, certificate, etc.) with invested parties
  - Host more student job fairs and training formats
  - Develop relationships and meaningful partnerships/connections within communities
  - Find funding and invest in entry level opportunities
  - Market jobs to be more attractive
  - Support positive work culture
  - Develop central HUB of resources and opportunities

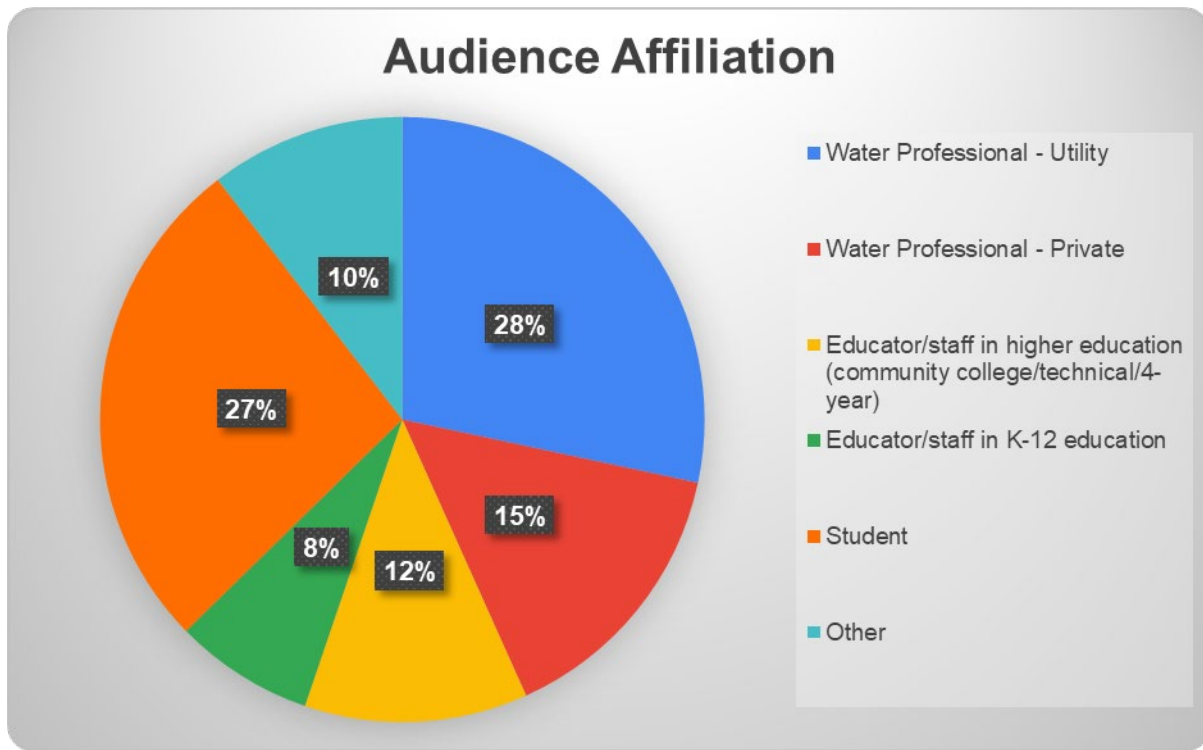
The full notes recorded during the breakout room discussions can be found [here](#).

## Summit Audience Poll Responses & Summary

To better understand the various barriers and needs surrounding water workforce development in Colorado, audience polls were conducted throughout the day. Poll questions were asked in plenary before and after panel sessions.

### *Question 1 – What is your affiliation?*

The audience of the Water Workforce Summit was comprised of a diverse set of individuals from different affiliations across the water sector.



### *Question 2 – What do you hope to get out of today (the Water Workforce Summit)?*

Audience responses ranged from extremely broad to specific. Broad responses included calls for resources and education, collaboration, funding sources, connections and networking opportunities, new strategies, perspectives, and ideas, and action steps. Other responses were more specific to the individual and their affiliation. Some student participants were actively seeking employment opportunities and connections to professionals in the water field. Industry participants were hoping to recruit new employees, learn how to better support incoming employees, and develop apprenticeship programs, while educators were seeking to learn how to better support students through water-related programs and courses. Overall, the poll responses highlighted a strong desire for collaboration/partnerships, education, and action to address workforce needs and advance the water industry in Colorado and beyond.



*Question 3 – What are your greatest challenges around water workforce?*

The poll results highlight the diverse range of issues faced by water-related professionals and educators as well as students seeking to enter the workforce. Some of these challenges include:

- Lack of public education and awareness surrounding water-related careers and issues
- Water issues are complex; it is challenging to educate the public/students on the issues with simplified messaging
- Lack of networking and mentoring opportunities for students
- Students are challenged in knowing what education/training is required for jobs, finding job opportunities, and how to narrow their focus within water
- Water professionals experience resource constraints including funding, personnel, safety concerns, and time
- Water industries face employee recruitment and retention challenges

*Question 4 – What are water workforce employers looking for?*

Based on the responses provided, water workforce employers are looking for employees who possess a combination of technical skills, professional skills, and personal attributes. Some of the technical skills range from basic computer skills to knowledge of specific software programs. Some of the desired professional skills include punctuality, collaboration, communication skills, critical thinking, and a growth mindset. Additionally, water workforce employers are seeking applicants who have a passion for and are knowledgeable on Colorado water issues. Personal attributes that employees are looking for include a positive attitude, a willingness to learn and adapt in a dynamic work environment, team-oriented nature, and respectfulness.

*Question 5 – What are your key takeaways from today (the Water Workforce Summit)?*

From the responses provided, it was evident that the Water Workforce Summit was a valuable event that yielded several key takeaways. Audience members expressed a growing concern for the current water industry and are seeking change. Additionally, there is a call for more dialogue and resources within the water industry for education and apprenticeship programs. Youth are seen as integral to the future of water professionals and careers, and efforts should be made to engage them early on and provide equitable opportunities across socioeconomic statuses. It was recognized that networking and collaboration are key to developing partnerships and synergies between education and industry. There was hope in realizing that many others were in the same situation, and that thinking together on workforce issues can generate collaborative programs and solutions. Many participants expressed the need for annual or regular convenings like the Water Workforce Summit to maintain momentum and address ongoing challenges.

Overall, the Summit provided an opportunity for participants to learn, network, and collaborate towards addressing the challenges facing the water workforce and building a sustainable future for the industry.

## Day 2: Water Career & Education Fair (April 3, 2024)

Day two of the Water Workforce Summit consisted of a Water Career and Education Fair at CSU Spur in Denver. The Water Fair hosted 36 different exhibitors (see list below) and featured a networking event in which students were matched with industry professionals to learn about water professions and employment opportunities. Additionally, the Rocky Mountain Section of the American Water Works Association organized a “Hydrant Hysteria” competition with teams from Denver Water and Westminster. Teams competed to see who could assemble a fire hydrant the fastest and most accurately.

List of Water Fair Exhibitors with organization links:

<a href="#">American Water Resources Association</a>	<a href="#">Four Corners Water Center - Fort Lewis College</a>
<a href="#">Arvada West High School</a>	<a href="#">Hazen and Sawyer</a>
<a href="#">BBA Water Consultants, Inc.</a>	<a href="#">INTERA</a>
<a href="#">Boxelder Sanitation District</a>	<a href="#">Lincoln Hills Cares</a>
<a href="#">Castle Rock Water</a>	<a href="#">LRE Water</a>
<a href="#">City &amp; County of Denver</a>	<a href="#">Metro Water Recovery</a>
<a href="#">City of Aurora - Aurora Water</a>	<a href="#">Natural Resource Conservation Service</a>
<a href="#">City of Thornton</a>	<a href="#">Northern Water</a>
<a href="#">Colorado Department of Public Health and Environment - Water Quality Control Division</a>	<a href="#">Parker Water &amp; Sanitation District</a>
<a href="#">Colorado State University Online</a>	<a href="#">Pure Cycle</a>
<a href="#">Colorado Water Center at Colorado State University</a>	<a href="#">Rocky Mountain Section AWWA</a>
<a href="#">Colorado Water Conservation Board</a>	<a href="#">Rocky Mountain Water Environment Association</a>
<a href="#">Colorado Water Trust</a>	<a href="#">South Metro Water Supply Authority</a>
<a href="#">Colorado WaterWise</a>	<a href="#">South Platte Renew</a>
<a href="#">Denver Water</a>	<a href="#">St. Vrain Sanitation District</a>
<a href="#">DNR - Division of Water Resources</a>	<a href="#">Water Education Colorado</a>
<a href="#">ECCV Water &amp; Sanitation</a>	<a href="#">WestWater Research, LLC</a>
<a href="#">Fort Collins Utilities</a>	<a href="#">Wilson Water Group</a>

## Post-Summit Survey Results

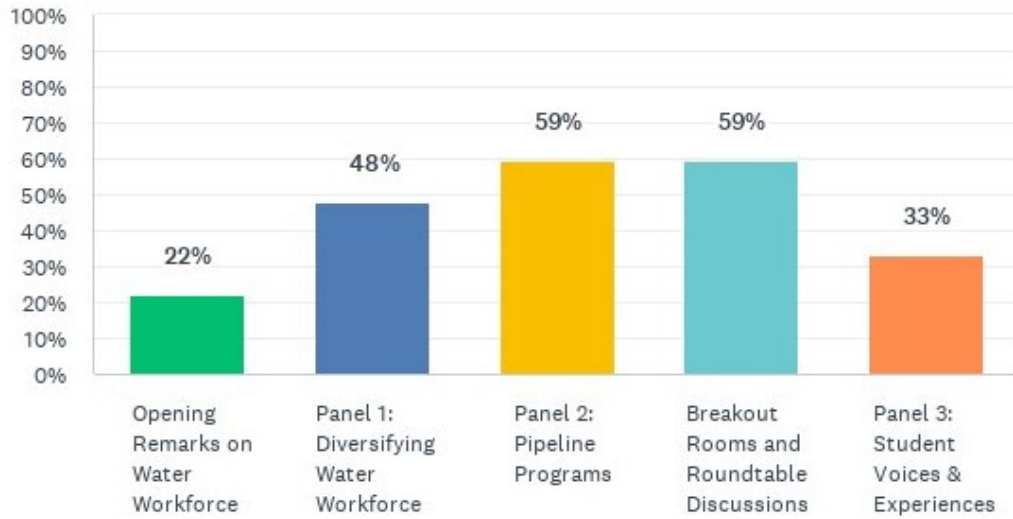
After the Summit, a survey was emailed to all attendees to collect feedback on the Water Workforce Summit. Results that are relevant for next steps and future directions are presented below.

### Day 1 – Water Workforce Summit Results

There were 27 responses collected for the Day 1 Water Workforce Summit reflection survey.

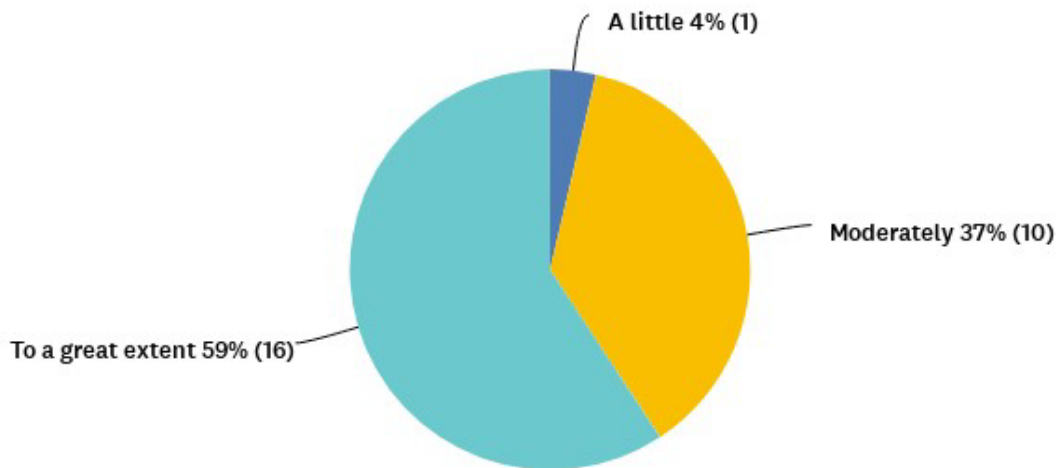
- Out of the different sessions that made up the Day 1 program, respondents found the panel discussion on Successful Pipeline Programs and the breakout room discussions to be the most valuable.

Question: Which sessions did you find the most valuable or insightful?



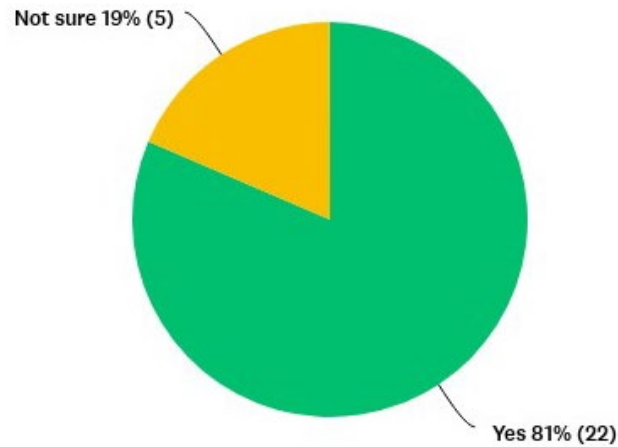
- Ninety-six percent of respondents said that the Water Workforce Summit met their professional and/or education needs moderately or to a great extent.

Question: To what extent did the Water Workforce Summit meet your professional and/or educational interests and needs?



- Eighty-one percent of respondents agreed that the conference portion of the Summit should be held annually.

*Question: Do you think the Water Workforce Summit should be held annually?*



- Respondents shared several recommendations for the future Water Workforce Summits, including:
  - Hold events like this earlier in the year so students can take advantage of job openings posted for summer positions
  - Panel sessions could be shorter
  - The interactive breakout rooms and round table discussions were valuable and could be extended and/or more opportunities like this should be incorporated into future events
  - There is an opportunity to reach a wider, more diverse audience and voices
  - Potential for additional panels/speakers include water employers, politicians, scientists

Several respondents shared significant insights or takeaways gained from attending the Summit. These themes will form the foundation of next steps for water workforce development in Colorado. Some common resulting themes include:

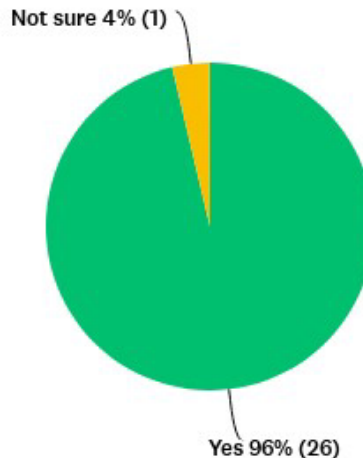
- There is a need for centralized communication and information related to water careers, including:
  - List of professional organizations, details, and contact information
  - List of school programs that offer water-related courses
  - List of water-related employment opportunities including internships and apprenticeships
  - List of certifications and required skills to enter water workforce
- Water education needs to start at an early age and continue throughout K-12
- Strategies are needed to recruit diverse applicants, including underrepresented populations
- Additional funding sources are needed to support water workforce development
- Marketing is needed to increase and spread awareness of water careers
- Both recruitment and retainment strategies are necessary to support long-term water workforce development

## Day 2 – Water Career and Education Fair Results

There were 27 responses collected on the Water Career and Education Fair reflection survey.

- When asked about additional exhibitors to reach out to in the future, suggestions included:
  - Nonprofit organizations, such as Trout Unlimited, The Nature Conservancy, etc.
  - Water law firms and water law school programs
- When asked about additional tools, resources, support, knowledge, and connections that are still needed to support water workforce development, respondents indicated:
  - More workshops and opportunities like the Water Career and Education fair are necessary.
  - Additional skill workshop ideas:
    - Skill workshops: GIS (Geographic Information Systems) tools, communication, resume-building, etc.
    - Workshops held by water employers for desired skills
  - Provide list of exhibitors with contact information
- 96% of respondents agreed that the Water Career and Education Fair should be held annually.

*Question: Do you think the Water Career and Education Fair should be held annually?*



To provide value for attendees and to advance water workforce development, the following recommendations were provided for future Water Fairs:

- Career fair events should be held earlier in the year
- The networking session was valuable and should be held at the beginning or end of the career fair, not in the middle of the event
- More advertising is needed to reach broad and diverse audiences
  - Need to reach more students from all levels – high school, technical school, community colleges, undergraduate, graduate, and PhD

- Target adults interested in changing careers
- Name tags would be beneficial
- As the event grows, more space is needed
- Additional locations should be considered to host the career fair with the option to rotate locations for equitable access
- Consider hosting a career fair twice a year

## Next Steps

The goal of the Water Workforce Summit was to bring water industry professionals, students, and educators together to discuss and address water workforce needs in Colorado. The discussions and feedback from the Summit provided several action items for addressing water workforce issues.

### *Overall Themes and Action Items:*

- Create centralized information hubs focused on:
  - Water-related curriculum and education resources connected to K-12 standards
  - List of school programs & related contacts that offer water-related courses at various education levels: high school, community college, trade school and university
  - Job/internship/apprenticeship opportunities
  - Contact list for professional organizations and industries in water
- Increase youth water education & professional development opportunities
  - Hold the Water Education & Career Fair annually
  - Increase exposure of high school students and higher education students to water careers through outreach at events, conferences, and classes
  - Hold skill and resume workshops for students
  - Create mentorship opportunities between students and professionals
- Continue dialogue around water workforce and build relationships:
  - Hold follow up focus group meetings to facilitate more in-depth conversations with water professionals, educators, and students
  - Hold Water Workforce Summit every other year to convene diverse groups involved in water workforce
  - Conduct more outreach with Colorado school districts to learn how to best engage teachers & students in water programming; facilitate K-12 partnerships with industry
- Identify and secure funding to support water workforce development
  - Scale up programs with professional certifications (concurrent enrollment in High School, Community Colleges) that can build into degrees (4-year programs)
  - Expand paid internship and apprenticeship opportunities for students

*Thank you for your support and collaboration! The Colorado Water Center looks forward to working with you on the next phase of advancing water workforce initiatives in Colorado.*