impact

University of Idaho Extension programs that are making a difference in Idaho.

The Youth Water Summit increases student science confidence

AT A GLANCE

High school participants in Idaho Water Resources Research Institute Youth Water Summit showed increased science confidence after the yearlong confluence project.

The Situation

Water resource education empowers communities to prepare for and adapt to future water challenges. Water resource education at the secondary school level supports the development of a workforce prepared to meet the needs of a growing population and a changing landscape. And, beyond meeting the need for qualified water managers, public water systems and wastewater treatment staff, water science education prepares students to respond as scientifically literate citizens to proposed plans and policies that will impact their communities.

Building science confidence and empowering students to propose and evaluate community solutions requires science education that goes beyond classroom concepts, to real watershed concerns. Place-based education contextualizes core environmental science concepts within local watershed concerns.

Our Response

University of Idaho Extension and the Idaho Water Resources Research Institute (IWRRI) successfully piloted The Confluence Project high school watershed curriculum in five schools across the Treasure Valley, reaching over 200 students during the 2025-2026 school year. The program culminated at the inaugural southwest Idaho Youth Water Summit, where over 160 10th-12th graders presenting water science research projects and solutions.

Idaho City Youth Water Summit first place team. Their project was titled “Effect of Snowpack on Streamflow.”

The Confluence Project (TCP) introduces students to watershed science concepts and inquiry. TCP scaffolds scientific inquiry on three field experiences throughout the year — water quality, snow science and groundwater — by framing how to ask scientific questions, generate a hypothesis, and collect and interpret data. TCP connects students to scientists who model the inquiry process and provide a relevant context for student data collection. During the last two months of the program, students complete water research projects on topics of their choosing.

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Program Outcomes

Two hundred students completed a pre-survey before participating in TCP, and 100 of the same group of students completed the post-survey. Survey attrition was due to student schedule changes, graduation and student absences when the post-survey was administered. The survey included 34 Likert scale questions focused on three topic categories: science confidence, science relevance and water science knowledge. A Mann Whitney test was used to highlight the significance of mean and median changes between pre- and post-answers, and 28 of the 34 questions showed significant differences.

Overall, the survey results showed an increase in student science confidence and water resource knowledge. For instance, the pre-test mean was 4.66 for the question "I am confident designing science experiments and research projects," and the post-test mean was 6.29 (Table 1).

In addition to survey results, students provided qualitative comments that affirmed the value of the Youth Water Summit and research project. One student wrote that their presentation gave them "valuable skills that can be broadly applied." Another wrote, "I got to hear input and questions from actual professional scientists that helped me exercise critical thinking."

Winning Youth Water Summit topics included fish ladder designs, pesticide impacts, invasive plants, microplastics, snow, satellite imagery, algae blooms, dams and many more topics were represented across all students in attendance.

Table 1. TCP student pre/post surveys demonstrated significant attitudinal changes in 28 of 34 Likert scale questions. Mean responses — on a scale from zero to 10 — for 21 questions shifted by at least one scale-point. Zero means "the respondent strongly disagrees with the statement" and 10 means "the respondent fully agrees with the statement."

Survey	Pre-test mean	Post-test mean	Change
I am confident desgning science experiments and research projects.	4.66	6.29	1.63
I know how to use a sciencetific process to research and problem.	5.42	6.62	1.20
I can identify water resource problems in my community.	4.15	6.27	2.11
I can explain why some solutions for water resource and climate change issues in southern Idaho will work better than others.	4.08	5.88	1.80
I feel confident suggesting solutions for my community water resource and climate change issues.	4.00	6.03	2.03
I know a lot about water resources.	4.37	6.35	1.98
I know where my drinking water comes from.	5.01	7.39	2.38
Changes in snowpack affect my life.	5.03	7.14	2.11

FOR MORE INFORMATION

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