

# Stream Side Science: Hands-on Water Education that Makes a Difference

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Stream Side Science (SSS) uses hands-on stream monitoring techniques to teach middle- and high school students about water pollution and watershed functions. The 11 lesson plans cover science, management, and policy aspects of water science and water quality. Because the curriculum engages students directly in their local watersheds, they also learn about stewardship through service and community outreach projects.

## Stream Side Science was developed with the needs of educators in mind.

- SSS is aligned to national and state science standards.
  - Each lesson plan is formatted for easy use, provides clear instructions and explanations for teachers, includes examples of data summary statistics and graphing, and includes frequently asked questions that can be used in classroom discussions.
  - The lessons have been reviewed by scientists, policy makers, and educators to make sure the curriculum is scientifically accurate, age-appropriate, and unbiased.
  - The curriculum is available online or by request. Materials needed for the lessons are inexpensive and easy to obtain or build.
  - Focus groups showed that many educators felt they need more training in water science. SSS workshops are designed to provide educators with the knowledge and skills to teach water science to their classrooms.
- Stream Side Science is flexible, fun for students, and promotes stewardship through service and community projects.**
- The lesson plans are being used nationwide to teach such disciplines as agriculture and natural resource

education, biology, chemistry, math, geography, and other social studies.

- Informal educators are using SSS for 4-H, scouting, after-school, and summer activities.
- Student projects using SSS concepts include watershed-wide monitoring, riparian restoration, and community education on urban stormwater.



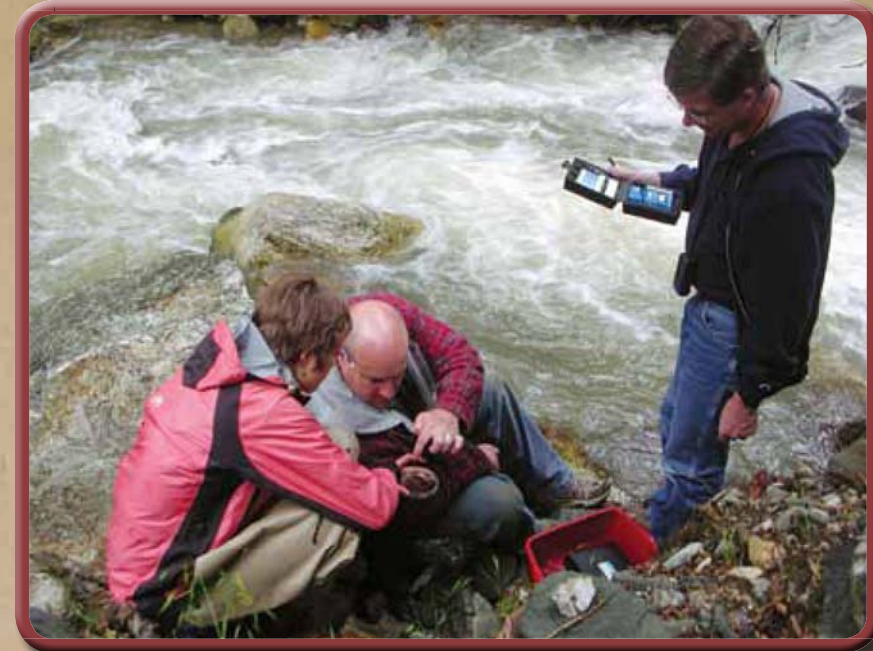
*Fourth graders from Cache County, Utah, schools are learning how to collect macroinvertebrates in Logan River using a kicknet. Photo courtesy of Laura Hines, Utah State University Water Quality Extension.*

## Stream Side Science Impacts

- SSS increases students' knowledge in STEM disciplines through lessons focused on water science and management. A study of almost 1,000 students found significant increases in knowledge and awareness of water science and issues after using these lessons.
- Since 2004, more than 1,300 Utah educators have attended high quality training at one- to two-day workshops. An estimated 40 percent of these teachers

use SSS in their teaching.

- SSS is a text for a three-credit online graduate education course taught by Montana State University. Since 2006, about 150 educators from around the country and beyond have taken this class.
- SSS has been incorporated into other programs, including Community Mapping Projects, Adopt a Waterbody Programs, and Master Naturalist Programs.
- SSS materials are being used



*High school teachers collect macroinvertebrates and measure dissolved oxygen in Farmington Creek as part of a Stream Side Science teacher workshop. Photo courtesy of Laura Hines, Utah State University Water Quality Extension.*



*Fourth-grade students from Weber County, Utah, identify and inspect macroinvertebrates. This lesson allows students to discover the various adaptations that allow macroinvertebrates to live in water. Photo courtesy of Laura Hines, Utah State University Water Quality Extension.*

in developing training and course work at Tribal colleges and Hispanic Serving Institutions around the country.

## Teachers say:

- "The curriculum reinforced concepts, builds on previous understanding of watersheds, and modeled how I can present to students."
- "Best workshop I have been to in 20 years!"
- "I am going to apply all of this to my class next year!"

***In Utah alone, an estimated 80,000 students have increased their knowledge and awareness of water quality and water science through participation in Stream Side Science.***

See Stream Side Science at: [www.region8water.org](http://www.region8water.org).