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High School Students Research and Learn About Environmental Impacts on the Local Ecosystem

For the past 11 years, El Dorado County high school students have participated in field research at the Watershed Education Summit (WES), an outdoor educational collaboration of local high school students and teachers, and professionals from county, state, and federal agencies. This year's project was located in the Crystal Basin of the American River Watershed, within the Eldorado National Forest and was spearheaded by Oak Ridge High School teacher Stan Iverson and El Dorado County Resource Conservation District Project Manager Mark Egbert, Watershed Coordinator Melissa Marquez, and Soil Technician Fred Hunt (Camp Organizer/Cook). Participating high schools included El Dorado (Placerville), Oak Ridge (El Dorado Hills), Ponderosa (Shingle Springs), Union Mine (El Dorado), Shenandoah (El Dorado), and Golden Sierra (Garden Valley).

During the 4-day summit, students listened to Cherokee, Miwok, and Nisenan stories and songs and witnessed dances led by Cherokee Elder Gordon Boswell. In addition, students worked on the Jones Fork, Silver Fork, and Wench and Rubicon creeks adapting various physical and biological monitoring protocols to tasks which included water quality testing; stream cross-sections, flow, and velocity; pebble counting; macroinvertebrate sampling; electrofishing; vegetation measurement; and assessing the physical habitat, among other tasks. Students were paired with a professional team leader and worked side-by-side collecting valuable data to meet the quality assurance standards set by State Water Quality Control Board (SWQCB) team leader Dominic Gregorio.

In the evenings, students sat around the campfire learning and participating in discussions with professionals dealing with issues involving sustainability of the natural resources and policies. Students also learned about the impact on the environment from logging, hydroelectric use, recreational camping, and OHV use, and how these activities affect the water quality of the tributaries within the Crystal Basin Recreation Area. The scientific data collected would be analyzed for the purpose of helping government agency officials institute policies and protection measures to balance competing demands on the high Sierra mountain ecosystem.

Participating federal, state, and local agencies in this year's summit included professionals from El Dorado County Resource Conservation District (RCD), U.S. Forest Service, CA State Water Quality Control Board, El Dorado Irrigation District, CA Department of Fish & Game, U.S. Natural Resource Conservation Service (NRCS), U.S. Fish & Wildlife, CA Department of Forestry and Fire, Rubicon Trail Foundation, American Land and Leisure, and Native Americans from the Cherokee, Miwok, and Nisenan tribes.

Debra Power, Chemistry and Physical & Earth Science teacher at Oak Ridge High School, participated in the summit teaching students about water quality monitoring. Powers states that, "This year's experience was a triumphant success. Next year, the summit will expand on this year's effort to help the U.S. Forest Service collect data on the effects of thinning forest stands by mechanical and control burning methods. We hope to establish sites on new tributaries to collect baseline data prior to the thinning methods and then monitor the tributaries for several years after to see how these methods affect stream water quality and local biodiversity."

Stan Iverson, Oak Ridge High School AP Environmental Science and Biology Teacher, states that, "This collaborative is a terrific adventure for the students. Their classroom learning becomes reinforced through real-world experience. Students learn not only about the potential for negative impacts on the environment and natural resources from human interaction and natural disaster, but also about the various sciences and techniques used in monitoring and mitigating the ecosystems and the multitude of agencies involved. This experience is truly a catalyst to energize students towards the environmental science field, a truly rewarding experience." Iverson encourages the public to view a great video on the student watershed experience done by Union Mine High School Chemistry Teacher Debora Demoff. The video can be viewed from the El Dorado Union High School District home page at www.eduhsd.net, click on Student Watershed Video 2010 from the Bulletin Board.