



CALIFORNIA STATE SCIENCE FAIR 2013 PROJECT SUMMARY

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Project Title An Analysis of the Effects of Urban Runoff on Sycamore Canyon Creek	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This experiment was conducted to determine the effects of urban runoff on the water quality of Sycamore Canyon Creek. If the tests of various water quality components indicate that urbanization has affected the water quality of Sycamore Canyon Creek, then the concentration of these particles will increase as they flow throughout Riverside.</p> <p>Methods/Materials On June 21, 2012, November 20, 2012, and December 28, 2012 water samples were taken from seven sites along the Sycamore Canyon Creek. These sites were two tributaries near the upper reach of the creek, the lower end of the canyon, the middle of Canyon Crest Golf Course, the middle of Victoria Golf Course, the concrete ditch at Andulka Park, and the middle of Riverside Community College parking lot. Water samples were tested for dissolved oxygen, carbon dioxide, pH, total dissolved solids, and temperature on site. After additional water samples were collected and tested for nitrate, nitrite, phosphate, total hardness, alkalinity, coliform, ammonia, chloride, and salinity, then data was recoded. Titration, VACUette kits, and electrode meters. were used to collect this data.</p> <p>Results The results collected were scattered, indicating that other variables, such as the environments of each individual site also affected the water quality of Sycamore Canyon Creek. The most significant results found were that of nitrate.</p> <p>Conclusions/Discussion A major contributor to the ammonia, nitrite, nitrate, and coliform levels in the creek was due to the construction of the Perris Valley Pipeline. The approximate 6.5 mile/8-foot diameter Perris Valley Pipeline was constructed to transmit Metropolitan Water District water from a facility located near the Oleander Ave intersection to the Henry J. Mills Water Treatment Plant located within the Orange Crest area of Riverside CA. When the excess groundwater from the septic tanks was intercepted by a trench, it started to flow eastward into Moreno Valley and towards the Perris Valley Pipeline. To prevent this, a horizontal well was placed to drain effluent from the septic tanks on Gem St. into a tributary of Sycamore Canyon Creek. The results collected were scattered, indicating that other variables also affected the water quality of Sycamore Canyon Creek.</p>	
Summary Statement This experiment was conducted to determine the effects of urban runoff on the water quality of Sycamore Canyon Creek through the testing of seven sites along the creek for various physical and chemical components.	
Help Received Lab kits were provided by a chemistry teacher, Michelle Hampton; a hydrologist named Tom Deane helped by answering questions regarding this project.	