



# California Project WET Gazette

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## Seeing Watersheds

As the school year winds down and the thoughts of many reading this newsletter turn to summer vacations, I thought this may be a good time to remind us all of an important fact - We all live in a watershed. A watershed is the area of land that water can drain downhill from into a common body of water, be it a puddle, pond, stream, river, lake or ocean. It doesn't matter if you're sitting in a yard of sub-tropical plants in a San Diego neighborhood, staring at the sandy floor of the Mojave Desert or driving the freeways of the Central Valley this summer- all are part of a watershed. You're sitting or standing on one right now. I live in the Mokelumne River watershed, but over the next month I'll be traveling through the watersheds of the Tuolumne, Stanislaus, Cosumnes, American, Yuba, Bear, Feather and dozens of sub-watersheds within each like that of Schneider Creek that flows through the UC Berkeley Forestry Camp near Meadow Valley. Schneider Creek is a sub-watershed of the Spanish Creek watershed, which in turn is a sub-watershed of the Feather River watershed, which is a part of the Sacramento River watershed - and all of the listed examples are part of the vast watershed of the San Francisco Bay-Delta.

The California Department of Conservation has identified 190 watersheds in California - and each of these are further broken down into many more sub-watersheds. Understanding these relationships can sound a bit overwhelming, which is why the new Project WET activity *'Seeing Watersheds'* (p:187) eases students into it by studying the concrete example of watersheds delineated among the folds of a crinkled sheet of wax paper before progressing into the more abstract world of maps. *'Seeing Watersheds'* is one of the few activities I actually sat down and did from beginning to end myself - and enjoy doing the same in workshops when the time allows. Basic map reading is nearly as non-existent a skill among adults as it is among children, but I haven't met a kid (or adult) yet that hasn't gotten the concept of a watershed and can't delineate a simple watershed on an actual topographic map by the end of this activity. Try it yourself if you have a copy of Project WET Guide 2.0 - or find a Project WET workshop to attend among the list of professional development opportunities in this newsletter to receive a copy!

Summer travels provide a wonderful opportunity to observe the wonderful diversity of watersheds. But, if travel is not in the plans or you are looking for a way to spark student interest in a more in-depth study of watersheds, then I'd suggest the activity *'Discovering the Waters of Our National Parks'* (p: 495). Water is a key feature of our national parks and plays a major role in many of the other units administered by the National Park Service. The activity provides a superb opportunity to meld student understanding of science, history and language arts standards by not only investigating the role of water in the parks highlighted in the activity as written in Project WET Guide 2.0, but also having the students delineate the watershed(s) in which the park is located - Calculating the area of the watershed would also provide an additional work-out on the use of those upper-level math skills! A California supplement to the activity has been created for 18 National Park Service sites in California using information from their websites. Many of our California National Park Service units straddle watersheds vital to statewide water

supplies – One came into being in part as a major water transfer point to supplement water supplies within the Central Valley Project. Can you figure out the identity of this National Park site in the sampling of California cards I've included with this newsletter? What California watersheds are each of the other National Parks units located in – and how might the watershed and Park management be interrelated?

Summer also provides wonderful opportunities to wreak havoc on our watersheds – starting with our demand for water. As water demand rises throughout the state, as more water is transferred from the watersheds of the Parks and other forested lands of northern California - not even the seemingly isolated watersheds of the north coast are immune from our demand, as Trinity River water is also transferred to supplement water supplies in the Central Valley. When many California species adapted to Mediterranean climates are slowing down, going dormant or in the case of plants dropping leaves to conserve water, our species ramps up use as we struggle with the idea of conserving water when it is so easily – and cheaply - available at the turn of a tap. Don't believe me? Gather your family together or invite the neighborhood for a '*Long Haul*' (p: 273) event. This Project WET activity provides plenty of fun and a very strong reminder of what life was like – and how much less water was used - before the marvels of modern plumbing. While the thought of how much water is being used is fresh, cut everyone loose on a scavenger hunt to locate leaks around the house – then use '*Money Down the Drain*' (p: 351) as your guide to measure and calculate the rate of water being lost from leaks around the house. I measured a leak of steady drops that averaged 5ml per minute. In 30 days, 216,000 ml of water would be produced equal to just over 56 gallons, which would fill 216 one liter bottles. If you think water rates are high, calculate what this leak would cost you for the month on your water bill – then calculate what the same volume of water will cost you on the open market if purchased as gallons or 1 liter bottles at the store. Complete your water use investigation with a '*Water Audit*' (p: 469) to see where water is being used throughout your home and potential conservation measures you can take. Please remember to give your irrigation system a rest and put '*The Long Haul*' water to good use!

Our actions can also give a collective hammering to water quality. On your next drive or walk down the street, take note of the litter skittering across the pavement, or trash tumbling across the grass and the myriad of pollutants around our homes, work sites and recreation areas waiting to be delivered to a nearby stream by the next major rainstorm. That bit of plastic cup, torn paper or bottle cap may seem so trivial, but think of the volume of similar debris that may be present over the 834 square miles of the Los Angeles River watershed or the 27,000 square mile watershed of the Sacramento River. All of it in time flows downhill and downstream, where it is eventually deposited in landlocked water bodies like Lake Tahoe or Pyramid Lake, but most will likely flow into the ocean. During the 2010 Coastal Clean-Up Day, more than 1.2 million pounds of trash and recyclables were removed from our beaches, lakes, and waterways. Some communities along our coast have placed trash nets in streams to collect some of the debris, but a greater reduction can be achieved with people taking action at the source. Taking action to pick up loose litter is a start, but the activity '*There is No Away*', (p: 453) gives ideas on how some of the material could be put to use or further actions that can be taken. Review the Best Management Practices listed in the '*Storm Water*' (p: 395) activity, then use Part III of the activity to investigate what measures have been implemented in your community. Could any of these measures be applied at home?

The point of the article is that awareness is great, but actions matter – no matter how insignificant the problem at hand may be at the time. The persistent leak, litter left on the loose or tossed out of the window all add up to not only costs we each bear through taxes to counter the problem, but also threaten the health of ourselves and other organisms within and beyond the outflow of the watersheds in which we live and travel. For those who would also like to take action that allows one to see immediate and huge results, California Coastal Clean-Up Day is no longer solely focused on our beaches, but has been embraced by watershed groups to clean-up waterways throughout the state. California Resources Conservation Districts are among the groups leading the charge on National Public Lands Day to bring citizen engagement to bear in watershed restoration projects. Both events occur in September. For now, I hope you enjoy a wonderful summer!

## WEBSITES OF INTEREST

### **"California Watersheds: Our Vital Link"**

<http://aquaforia.com/california-watersheds-vital-link>

A full-color slideshow detailing California's watersheds is now featured on **Aquaforia**, the Water Education Foundation's California Water News Blog. This FREE slideshow highlights the crucial role watersheds play to the daily lives of Californians. Funded by a grant from the California Department of Conservation, the slideshow is packed full of useful information and photographs, maps and web links to help you explore each topic further.

### **U.S. Geological Survey: Science in Your Watershed**

<http://water.usgs.gov/wsc/index.html>

The purpose of this site is to help you find scientific information organized on a watershed basis. This information, coupled with observations and measurements made by the watershed groups, provides a powerful foundation for characterizing, assessing, analyzing, and maintaining the status and health of a watershed. Discussions with watershed groups across the country resulted in this web site.

### **National Park Service: LearnNPS**

<http://www.nps.gov/learn>

If you are a teacher searching for classroom materials, a student doing research, or a person looking for a place to spend some time, have some fun and learn in the process, LearnNPS is for you. Here you'll find curriculum, fun and games and a host of other fun and educational media created by the National Park Service and our partners. Come on in and experience your America in a new way. Those interested in visiting a national park can search by state at: <http://www.nps.gov/findapark/index.htm>

### **California Association of Resource Conservation Districts**

<http://carcd.org>

RCDs are a leader in on-the-ground conservation efforts. The 99 districts statewide are the center of locally led conservation in their communities and accomplish thousands of practical, hands-on conservation projects every year. Often these projects involve agriculture and private land, but we also accomplish much more. [http://carcd.org/rcd\\_directory0.aspx](http://carcd.org/rcd_directory0.aspx)

### **California Coastal Commission**

<http://www.coastal.ca.gov>

The California Coastal Commission works to increase public knowledge of coastal and marine resources and to engage the public in coastal protection and restoration activities. California's coast and waterways are collecting spots for annual accumulations of trash and debris that can be harmful and even fatal to marine wildlife and can become a human health hazard. Coastal Cleanup Day is a great way for families, students, service groups, and neighbors to join together to take care of our fragile marine environment - and to have fun! Find a cleanup site near you from our list of over 800 sites throughout California: <http://www.coastal.ca.gov/publiced/ccd/ccd2.html#coordinators>

### **South Yuba River Citizens League (SYRCL)**

<http://yubariver.org>

SYRCL (pronounced "circle") is the leading voice for the protection and restoration of the Yuba River and the Greater Yuba Watershed with over 3,500 members and volunteers based in Nevada City. We are the leading regional advocates for creating resilient human and natural communities throughout the greater Yuba River basin and inspiring & organizing people to join in our movement for a more wild & scenic Yuba River. Join SYRCL on September 15<sup>th</sup> for the **Annual Greater Yuba Clean Up and Restoration Day** to restore the Yuba River watershed at over 35 sites along 90 miles of shoreline along with several restoration projects.

### **EPA's Adopt Your Watershed program**

<http://water.epa.gov/action/adopt/index.cfm>

Visit our on-line Adopt Your Watershed database of more than 2,600 watershed groups to learn about opportunities to get involved in activities such as volunteer water monitoring, stream cleanups and storm drain marking. Once you locate your watershed, simply click on "citizen-based groups at work in this watershed" to find a list of organizations. We've included a Watershed Stewardship Toolkit with eight things you can do to make a difference in your watershed. Here is the California watersheds link:  
<http://cfpub.epa.gov/surf/state.cfm?statepostal=CA>

### **Friends of the Los Angeles River (FoLAR)**

<http://folar.org>

The mission of FoLAR is to protect and restore the natural and historic heritage of the Los Angeles River and its riparian habitat through inclusive planning, education and wise stewardship. FoLAR was founded on the belief that effective advocacy, education, collaboration and imagination can accomplish great things. *Contact Kari Rasmussen for other Educational Programs, [kras@FoLAR.org](mailto:kras@FoLAR.org).*

### **Santa Ana Watershed Association (SAWA)**

<http://www.sawatershed.org>

SAWA develops, coordinates and implements natural resource programs that support a sustainable ecosystem and social benefits from the San Bernardino Mountains to the Pacific Ocean. SAWA is committed to the protection and improvement of areas within the Santa Ana River Watershed. Learn new ways to teach about the Santa Ana River Watershed at our Educator Workshop: Teaching About the Santa Ana River Watershed (June 21-22). Register online for this free two day workshop. *Contact [carrie@sawaedu.org](mailto:carrie@sawaedu.org) for more information.*

### **Algalita Marine Research Foundation**

<http://www.algalita.org>

The Algalita Marine Research Foundation is dedicated to the protection of the marine environment and its watersheds through research, education, and restoration. We do this by conducting research and collaborative studies on the distribution, abundance and fate of marine plastic pollution and the potential harmful effects of plastics in the marine environment, including transference of toxins and their impact on human health. Algalita's education goals are met through our K-12 school programs that include curricula and/or DVDs and made possible by a partnership with Friends of the LA River (FOLAR).

### **Rozalia Project**

<http://www.rozaliaproject.org>

The Rozalia Project for a Clean Ocean's mission is to find and remove marine debris, from the surface to the sea floor, through action, technology, outreach and research. We connect people of all ages to their underwater world and inspire them to be part of the solution by using underwater robots (ROVs) and sonar as well as nets to locate and remove marine debris. Our programs include underwater trash-hunting with the ROV, presentations, STEM education-based activities for grades 3-12, cleanups and research projects throughout North America. Stay tuned for event dates in Los Angeles/Long Beach and San Francisco.

### **Sacramento River Watershed Program**

<http://www.sacrriver.org>

The Sacramento River Watershed Program brings together dozens of groups and thousands of people, concerned about the health of the Sacramento River and its watershed. Covering 27,000 square miles from the Oregon border to the Delta, the Sacramento River Watershed covers most of northern California, linking every aspect of life in the region. As one of the largest watersheds in the United States, it serves as an important source of drinking water and recreation as well as a vital economic artery for commerce and agriculture.

**If you would like more information on Project WET please contact Brian Brown, California Project WET Coordinator at: [projectwet@watereducation.org](mailto:projectwet@watereducation.org) or (916) 444-6240.**

**Check our website [www.watereducation.org](http://www.watereducation.org) and/or contact us for updates.**