Watersheds: **Sacramento Basin (Lower American River, Deer Creek, Dry Creek and South Yuba River)**

Sampling Period: **June 29 and June 30, 2009**

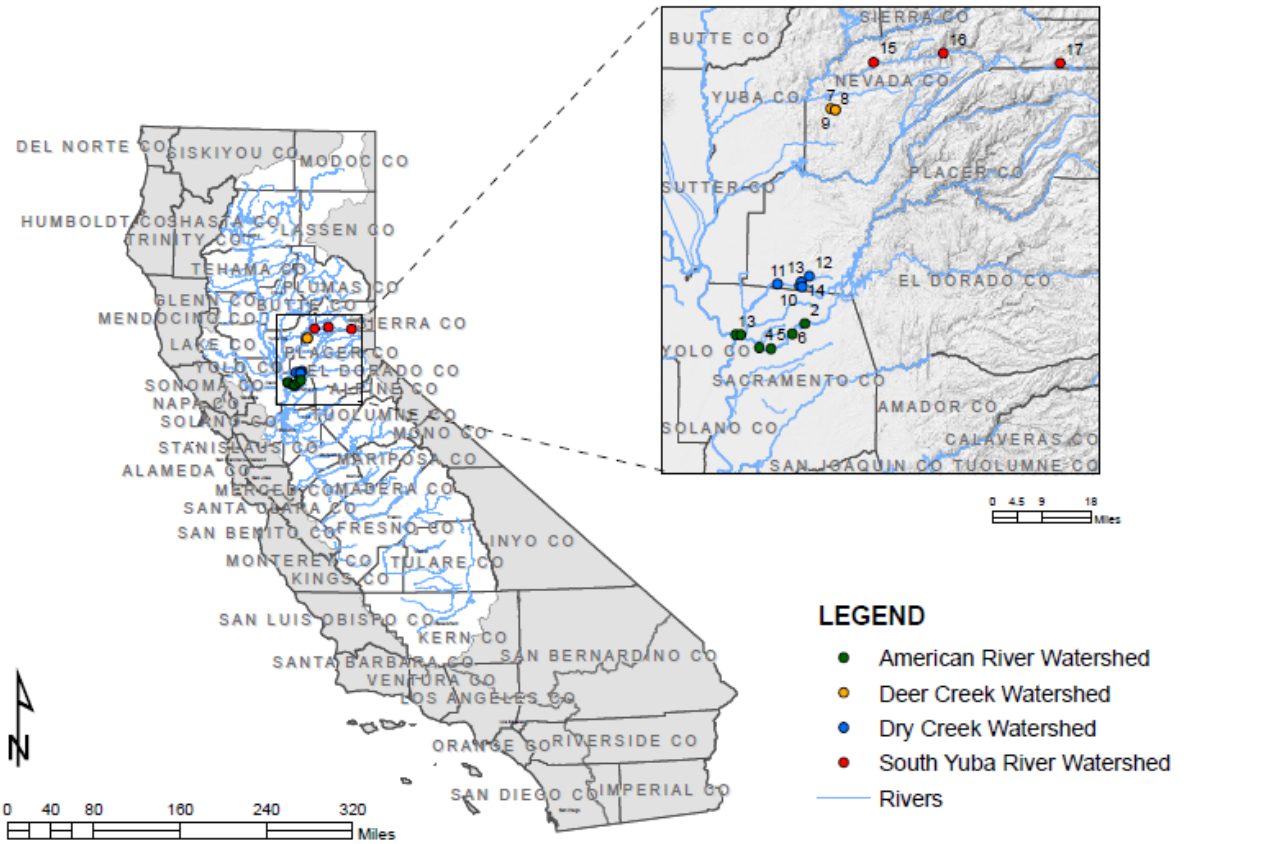
Report Objectives: **1) Identify potential sources of elevated bacteria documented in the Labor Day 2008, Safe-to-Swim Study. 2) Determine if water-borne pathogens are present.**

KEY STATISTICS

Number of sites sampled	*17*
Number of Constituents measured	*15*
Samples Taken	*85*
Number of Participating Watershed Groups	*2*

MESSAGE: ***Specific sources of bacteria were not pin-pointed, although the Lower American River, Deer Creek and Dry Creek subwatersheds continued to exhibit elevated E. coli levels at one or more sites. None of the sites tested positive for pathogenic E. coli O157:H7. The Deer Creek Watershed had a positive value for Cryptosporidium, but no measurable amounts of Giardia or Salmonella. The Dry Creek Watershed had measurable amounts of Cryptosporidium, Giardia, and Salmonella at one or more locations.***

Site Locations:



Summary of *E. coli*, *E. coli* O157:H7, *Cryptosporidium*, *Giardia* and *Salmonella* values

Map No.	County	Sub-watershed	Site Description	E. coli (MPN/100mL)	E. coli O157:H7 (+/-)	Crypto-sporidium (oocyst/L)	Giardia (cyst/L)	Salmonella (MPN/100mL)
1	Sacramento	L. American River	American River at Discovery Park	110	-	0	0	<2.2
2	Sacramento	L. American River	American River at North 10th Street	82	-	NA	NA	NA
3	Sacramento	L. American River	American River at Fair Oaks	36.4	-	NA	NA	NA
4	Sacramento	L. American River	American River at Watt Ave. Bridge	980.4	-	NA	NA	NA
5	Sacramento	L. American River	American River at Hagan Community Park	307.6	-	NA	NA	NA
6	Sacramento	L. American River	American River at Sunrise Blvd	74.9	-	0	0	<2.2
7	Nevada	Deer Creek	Squirrel Creek in Western Gateway Park, Penn Valley	579.4	-	0.91	0	<2.2
8	Nevada	Deer Creek	Clear Creek above confluence with Squirrel Creek	365.4	-	NA	NA	NA
9	Nevada	Deer Creek	Squirrel Creek above confluence with Clear Creek	1046.2	-	NA	NA	NA
10	Placer	Dry Creek	Dry Creek at Walerga Bridge	151.5		0	0.444	<2.2
11	Placer	Dry Creek	Dry Creek/Cirby Confluence	98.8	-	0.09	2	5.1
12	Placer	Dry Creek	Dry Creek at Royer Park	214.3	-	NA	NA	NA
13	Placer	Dry Creek	Cirby Creek at Elisa Way near I80	344.8	-	NA	NA	NA
14	Placer	Dry Creek	Miners Ravine/Secret Ravine Confluence	185	-	NA	NA	NA
15	Nevada	South Yuba River	South Yuba River at Purdon Crossing	204.6	-	0	0	<2.2
16	Nevada	South Yuba River	South Yuba River below Washington	71.2	-	NA	NA	NA
17	Nevada	South Yuba River	South Yuba River below Towle Mountain Rd	26.2	-	NA	NA	NA

Shaded values exceeded the USEPA Guideline for *E. coli* for designated beaches (>235 MPN/100 mL)

WHAT IS THE MEASURE SHOWING?

Results show that the Lower American River, Deer Creek and Dry Creek watersheds continued to exhibit elevated *E. coli* levels at one or more sites. None of the sites tested positive for pathogenic *E. coli* O157:H7. There was no clear evidence of a single source of *E. coli* contamination in the Lower American River or the Dry Creek Watershed, where non-point urban sources are abundant. In the Deer Creek Watershed, *E. coli* values were higher upstream of the Labor Day 2008 swimming hole site in an area dominated by cattle grazing. The Lower American River Watershed and the South Yuba River Watershed had no measurable amounts of *Cryptosporidium, Giardia,* or *Salmonella*. The Deer Creek Watershed had a positive value for *Cryptosporidium*, but no measurable amounts of *Giardia* or *Salmonella*. The Dry Creek Watershed had measurable amounts of *Cryptosporidium, Giardia,* and *Salmonella* at one or more locations.

WHY THIS INFORMATION IS IMPORTANT?

Bacteria is an indicator of potential risk of illness for those exposed to water (e.g. when swimming). Since *E. coli* is only an indicator of potential pathogens and does not necessarily identify an immediate health concern, the data collected from this follow-up study provide more information on pathogen indicators as well as specific water-borne pathogen concentrations to better assess their impact on the beneficial use of recreation and to identify potential contributors by subwatershed. All the information from this study has been provided to the local departments of public health.

WHAT FACTORS INFLUENCE THE MEASURE?

E. coli and specific water-borne pathogens can come from human or animal waste and may be highly mobile and variable in flowing streams. In addition to human recreational use, the presence of pathogens in water may be the result of cattle grazing, wildlife, urban and agricultural runoff, or sewage spills. The physical condition of the watershed may also influence pathogen measurements, however in this study field measurements (temperature, SC, DO, turbidity and pH) and nutrient concentrations (total nitrate-N, total phosphate, total Kjeldahl nitrogen, ammonia-N and ortho-phosphate) were variable between sites and it is unclear if these constituents had an effect on the *E. coli* or pathogen measurements.

TECHNICAL CONSIDERATIONS:

- Data source: Central Valley Water Board SWAMP
- *E. coli* is only an indicator of potential pathogens and does not necessarily identify an immediate health concern.
- Public report and fact sheet are available at:

http://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_studies/surface_water_ambient_monitoring/swamp_regionwide_activities/index.shtml