

## Another Scoop (on Pollution)

by Carole d'Alessio

2004

On February sixteenth it was cold and rainy, but that didn't stop thirteen volunteers from packing their bottles and ice chests and heading to the creek. There were no checkered tablecloths, tasty treats or welcome warm drinks to greet them, but instead, cupfuls of *E. coli* bacteria. On that day and on one day a week (rain or shine) for the following four weeks, each volunteer would bottle water samples from a designated site within the Corte Madera Creek watershed. Last winter, these volunteers joined a water quality sampling program with EPA Region 9 Lab, designed to determine the presence, and measure the concentrations of *E. coli* and *Enterococcus* in our creeks. Friends' volunteers collected samples and the lab tested them and reported the results.

The bacteria of concern, *E. coli* and *Enterococcus*, are harmless, but relatively easily detected bacteria found in the guts of warm-blooded animals; however, these bacteria are often associated with bacteria pathogenic to humans, and are therefore indicators of creek problems caused by the impacts of dogs, horses and leaking sewers. *E. coli* was used as an indicator in freshwater reaches of creek while *Enterococcus*, more tolerant of saline conditions, was measured in tidal sections near San Francisco Bay.

Friends' participation in this program began in the summer of 2003 when volunteers tested nine creek sites and found that all freshwater sections except one showed concentrations of *E. coli* that met the California standard for noncontact recreation. Concentrations in Deer Park Creek far exceeded these standards, but the results may have been an aberration. Larkspur Creek, the only site tested in the tidal section of creek, showed *Enterococcus* concentrations that far exceeded the EPA full-body contact criterion for saltwater.

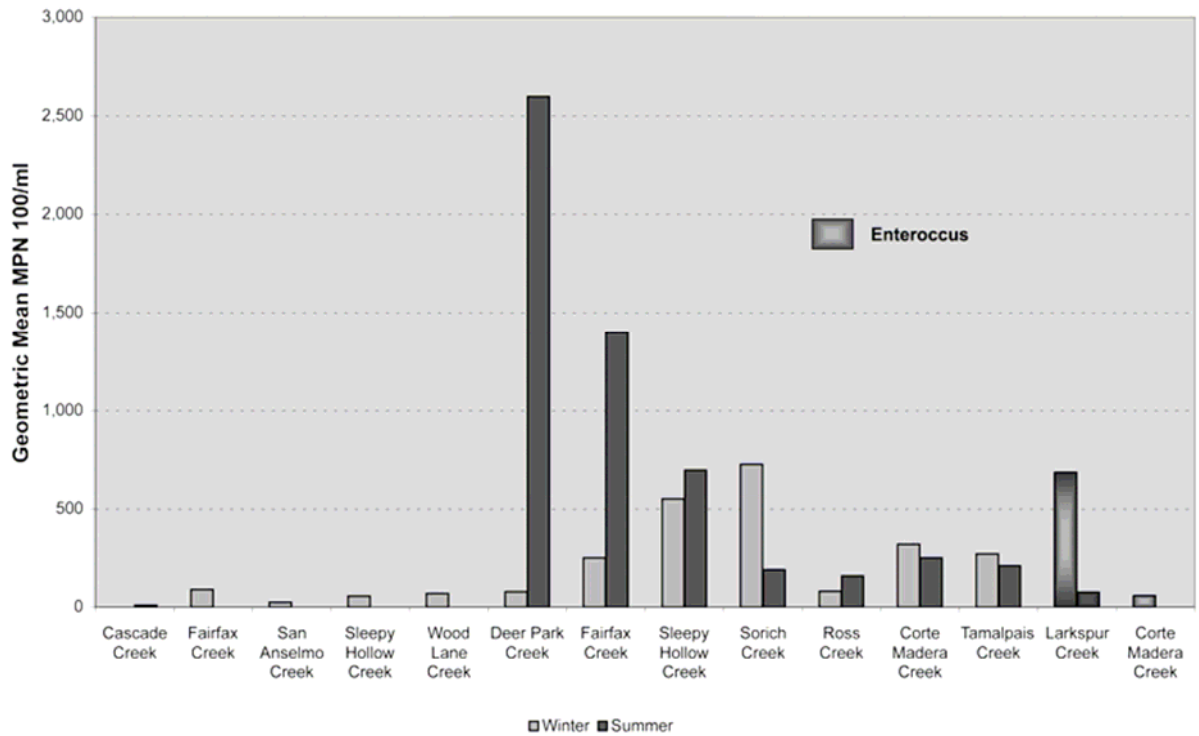
In winter we tested again, this time at thirteen sites: San Anselmo Creek in Elliot Preserve upstream of sewers and septic systems; Fairfax Creek, directly downstream of Baywood Canyon stables and downstream of Peri Park; Wood Lane Creek at Wood Lane stables; Deer Park Creek just downstream of the old Deer Park School; Sorich Creek on Nokomis Avenue; Sleepy Hollow Creek downstream of San Domenico stables and at Drake High School; Ross Creek just before it joins Corte Madera Creek; Tamalpais Creek in Kent Woodlands just upstream of Kent Avenue; Larkspur Creek adjacent to Redwood High School; and Corte Madera Creek behind Ross Town Hall, and at the Bon Air Bridge. The good news is all freshwater sites had concentrations that met state standards for non-contact recreation: you can enjoy the creek, but you shouldn't wade, or swallow the water. A welcome result was that tested areas immediately downstream of the stables met state and federal criteria for bathing standards and were among six of the eleven areas with the lowest concentrations of bacteria. At most sites, mean concentrations of *E. coli* were lower in winter than in summer, a pattern typical of urban watersheds, since there is less water diluting bacteria in summer. However, some sites did not follow this expected trend. At three out of seven freshwater sites (Sorich Creek, Corte Madera Creek at Ross and Tamalpais Creek), observed concentrations of bacteria were higher in winter and lower in summer. Testing next winter may help identify the reason for these anomalous results.

In the tidal section of creek, results were less favorable than those from the freshwater sections. At Larkspur Creek the mean winter concentration expressed as the most probable number of bacteria (MPN) of *Enterococcus* was 690 MPN, higher than in summer and greatly exceeding the EPA bathing standard of 35 MPN. Likewise, on Corte Madera Creek at Bon Air Bridge, where the winter, the concentration was 59 MPN, indicating that there may be impacts from non-point bacterial sources such as geese or dogs adjacent to the site or from a less visible source, such as leaking sewers.

Even though we are still pondering the results of winter sampling, it's time to gear up for summer. Friends will monitor where there were both high and low concentrations of bacteria so

that we can establish a more complete baseline from which to make comparisons. Monitoring sites will probably include San Anselmo Creek at Elliot Preserve, Fairfax Creek at Peri Park, Sleepy Hollow Creek at Drake High School, Sorich Creek, Larkspur Creek, and both locations on Corte Madera Creek. Friends will sample only where there is water, precluding areas at or below the stables, and at the creek downstream of septic leach fields in the Cascade/Canyon area of Fairfax, since both are dry from about May until the rainy season.

It should be borne in mind that sampling results are very variable, because concentration of bacteria can change according to the month of the year, or even to the time of day. Most important are the trends that develop over the course of sampling. Whatever we learn will be available to help guide planning commissioners, council members and town staff so they can make land use decisions that will help protect our creeks in perpetuity. Anyone who wishes to join the 19 volunteer water quality monitors, call Carole d'Alessio at 454-8608.



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Website design by Karen Peterson, San Anselmo

Friends of Corte Madera Creek Watershed  
 P.O. Box 415, Larkspur, California 94977 phone: (415) 457-6045 fax: (415) 457-6362  
[info@friendsofcortemaderacreek.org](mailto:info@friendsofcortemaderacreek.org)