This Summer's Scoop on Water Quality Testing

by Carole d'Alessio and Cindy Lowney
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At 5:30 a.m. on July 31st we volunteers lowered three kayaks from the dock, releasing them with a small splash into Corte Madera Creek. Before climbing in, we carefully provisioned them with glass sample bottles, ice chests, surgical gloves, and a hydrolab unit that would tell us the temperature and salinity, among other things, at our sampling locations. We selected locations at intersections of sloughs and tributaries in the tidal reach of the creek.

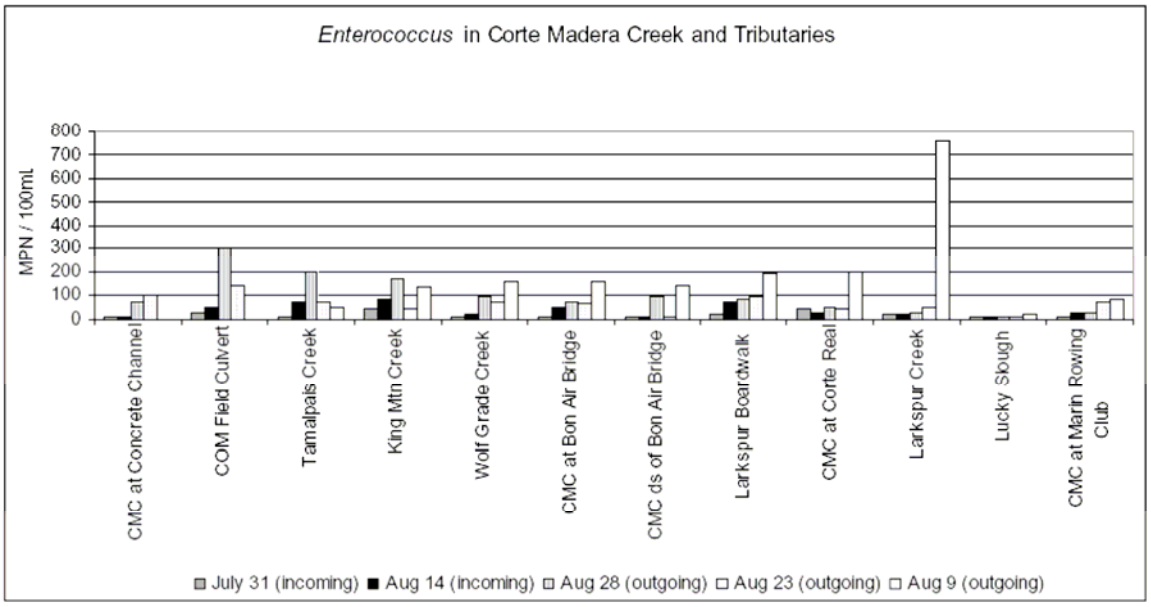
Our primary task was sampling *Enterococcus,* usually harmless bacteria found in the digestive systems of warm-blooded animals. These easily-detected bacteria are often associated with other bacteria and viruses pathogenic to humans, and are therefore indicators of creek problems caused by impacts of domestic pets, wildlife, and leaking sewers. Testing confirmed that concentrations of these bacteria were generally higher on outgoing tides, that most concentrations during outgoing tides did not meet water quality standards, and that these high concentrations appear to originate upstream.

Beginning in late July we took weekly water samples from 12 sites between the lower end of the concrete flood control channel in Kentfield and the Marin Rowing Association dock in Larkspur. During five weeks of sampling, we collected twice during incoming tides and three times during outgoing tides. We also took weekly water samples from two freshwater sites: behind Ross Town Hall and at Cascade Canyon Preserve in Fairfax.

The Marin County Department of Public Health Laboratory tested the samples for *Enterococcus.* After the results were returned 15 samples (some with high and some with low concentrations of bacteria*)* were sent to Analytical Sciences to be tested for caffeine. The lab work was funded by the San Francisco Estuary Project. We hoped the supplementary testing would help us differentiate caffeine consumers — latte guzzlers and cola chuggers — from pets and wildlife. Caffeine results were unfortunately inconclusive because samples were held too long. Caffeine can be broken down quickly and it is likely that the caffeine concentrations in our samples had been affected by biological activity while samples were held awaiting analysis.

Shown in the chart below, which Friends shared in a presentation to the Ross Valley Sanitary District board on November 7, 2006, are our test results. During outgoing tides (August 23, 28 and 9), concentrations of bacteria at most sites failed to meet the acceptable bathing standard of 35 MPN/100ml in the tidal section of creek. The highest concentrations of *Enterococcus* are from sites at the College of Marin field and Larkspur Creek. During incoming tides (July 31 and August 14), concentrations were much lower, because samples were representative of Bay water rather than runoff from the watershed. During our sampling of both the tidal and upstream sections of the watershed we have encountered tremendous variability in bacteria concentrations. Because results do vary so dramatically it is difficult to draw definitive conclusions from any one sampling effort. We are in the beginning stages of developing a long range sampling plan to track our progress in improving the health of our creek and to help identify sources of high concentration of bacteria in our watershed.

(see next page for chart)



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