



County of Santa Cruz

HEALTH SERVICES AGENCY

701 OCEAN STREET, ROOM 312, SANTA CRUZ, CA 95060-4073

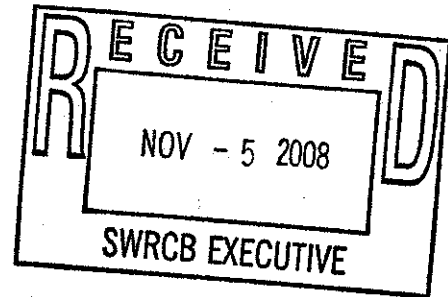
(831) 454-2022 FAX: (831) 454-3128 TDD: (831) 454-4123

www.co.santa-cruz.ca.us/eh/ehhome.htm

ENVIRONMENTAL HEALTH

November 4, 2008

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814



Subject: Comments on Statewide Bacterial Objective For Water Contact Recreation in Fresh Waters of California

I am writing to comment on two elements of the proposed revision of bacterial standards for freshwater bathing areas in California. We find no basis for adoption of the 1986 EPA objective for E. coli and we firmly believe that any approach needs to include a method to exclude natural sources. Our conclusions are based on over thirty years of monitoring and source assessment in Santa Cruz County, including two epidemiologic studies. We believe new standards for California should only be adopted after more thorough evaluation of alternative approaches based on scientific information specific to California waters.

Santa Cruz County has conducted weekly sampling for fecal coliform in freshwater bathing areas since 1970. In the past 6 years we have conducted source analysis using ribotyping and testing for human specific bacterioides. We also conducted epidemiologic studies of a total of 3,460 swimmers in freshwater and marine waters in 1996-97 and 2003-04. We have interviewed physicians and maintain a database of anecdotal reports of illness. We have also done some parallel testing for E. coli and fecal coliform.

We have found that in freshwater the fecal coliform levels are 85% of the E. coli levels with an R^2 correlation coefficient of 0.9. Although we have not seen a statistically significant linear relationship between rate of illness and any of the bacteriologic indicators, the occurrence of illness was 2.9% when the fecal coliform level was greater than 200 cfu/100ml. This occurrence was tenfold greater than if the fecal coliform level was less than 200 cfu/100ml. The occurrence of illness was similar (2.9%) when enterococcus was greater than 104 mpn/100ml, but was 2.1% for E. coli levels over 135 mpn/100ml. There is no indication in our area that fecal coliform or enterococcus is a better indicator than fecal coliform. We believe use of the EPA standards could result in more frequent posting of waters as potentially unsafe when there is no increased health risk.

Our understanding is that the 1986 EPA freshwater standards were based on studies conducted on the east coast and midwest in waters which were impacted by treated sewage discharges. This is generally not the case in California, where most bacteria comes from non-point pollution. Our

ribotyping studies in our local freshwaters indicated that over all periods 18% of the fecal contamination originated from human sources and 47% came from birds and wildlife. During the summer, there was no human contribution and 70% came from birds and wildlife. The remainder came from domestic animals, rodents, or unknown sources. This data supports the needs to take into account natural sources when establishing standards and definitions of impairment.

We urge the State Water Board to proceed carefully and use sound science relative to the waters and conditions in California when considering new freshwater standards. I would be glad to discuss this further and provide additional background material relative to this process.

Thank you for consideration of these comments.

Sincerely,

A handwritten signature in cursive script, appearing to read "John A. Ricker".

John A. Ricker
Water Resources Division Manager