

February 10, 2015

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
Sacramento, CA 95814



This is a copy of my testimony at the February 10, 2015, scoping meeting held at the Southern California Coastal Water Research Project offices

Good Afternoon. My name is Dr. Jack Skinner. I am a retired physician who has been involved in water quality issues for over 30 years as a private citizen. I have had an abiding interest in preventing gastrointestinal illness related to swimming in waters contaminated by human sewage that oftentimes contain noroviruses, the most common cause of GI illnesses in swimmers.

With that background, I am here to state that I strongly support option #2 regarding the Natural Sources Exclusion Approach in the draft document. I firmly believe that option #2 is logical, protective of the health of bathers swimming in coastal waters and bays, and will allow resources to be redirected to other important public health needs.

If you choose to adopt option #2, I urge you to include in your guidance document the very significant effects of regrowth of enterococci bacteria in biofilms that form in standing water in street gutters and storm drains. These enterococci bacteria are naturally occurring and, if studies have identified no human fecal input, then I believe they should be considered a natural source. However, when washed into coastal and bay waters, they have the potential to cause unnecessary beach closures even though there would be no health impacts.

Numerous scientific studies have demonstrated that huge numbers of enterococcus bacteria multiply in biofilms in the environment. This is different from the noroviruses that only multiply in the intestinal tract of humans. And, as I have said, noroviruses are the main cause of GI illnesses in swimmers.

Biofilms are a naturally-forming gelatinous-type material that provide a safe environment for enhanced bacterial replication. They can be identified by their appearance and by their slimy feel, and they form more frequently in puddles in the gutters.

I have taken biofilm samples from many gutters that drain into Newport Harbor near popular swimming beaches and the Orange County Health Department Lab in Newport Beach was kind enough to analyze the samples for me. The results from the gutter samples averaged over 7 million enterococci per 100 ml of biofilm. All samples were sonicated in the lab to release the enterococci from the biofilm so they could be accurately counted.

Studies performed by the City of San Clemente and a second large study performed by a consortium of cities located in San Diego County placed concrete coupons in a number of storm drains with flowing urban runoff. Two weeks later, they scraped the biofilm off the coupons and documented that there was regrowth of biofilm containing very high numbers of enterococci bacteria exiting the storm drains onto coastal ocean beaches.

In conclusion, I strongly support the addition of a Natural Sources Exclusion clause in the California Ocean Plan that would also include instructions to develop a guidance document for measuring and identifying natural sources of bacteria. In this regard, I urge you to include the very real bacterial source coming from naturally-formed biofilms in street gutters and storm drains where there is no human fecal input and thus no health concern.

Thank you.

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