

From:	Seth [seth@Masoncd.org]	Sent: Tue 12/14/2010 9:43 AM
To:	ECY RE SWQS	
Cc:		
Subject:	ecy triennial review of state water quality standards	

To whom it may concern:

I would like to thank the Department of Ecology for the chance to comment on water quality standards in the triennial review. I am interested in indicator bacteria due to my work in the water quality field specifically pollution identification and correction.

I would like to suggest changing the bacterial water quality indicator from the fecal coliform group to a more fecal specific indicator using E. coli in freshwater and Enterococci in marine waters or allowing the standards to encompass all three analysis. I am interested in the discussion of why we still use fecal coliform as an indicator of human or animal waste when the fecal coliform group includes bacteria from non-fecal origins such as saturated wood, which can give a false positive result. EPA suggests the use of E. coli and Enterococci as more specific fecal indicators.

I am wondering if the Department has not changed the standard due to the large amount fecal coliform water quality data and the National Shellfish Sanitation Program use of fecal coliform analysis for shellfish growing area classification.

I have cut and pasted text below from the EPA website concerning indicator bacteria and also from the e-medicine website concerning Klebsiella bacteria which can make up a large portion of the fecal coliform analysis.

text below was copied from

<http://water.epa.gov/type/rs1/monitoring/vms511.cfm>

Fecal coliforms, a subset of total coliform bacteria, are more fecal-specific in origin. However, even this group contains a genus, Klebsiella, with species that are not necessarily fecal in origin. Klebsiella are commonly associated with textile and pulp and paper mill wastes. Therefore, if these sources discharge to your stream, you might wish to consider monitoring more fecal and human-specific bacteria. For recreational waters, this group was the primary bacteria indicator until relatively recently, when EPA began recommending E. coli and enterococci as better indicators of health risk from water contact. Fecal coliforms are still being used in many states as the indicator bacteria.

E. coli is a species of fecal coliform bacteria that is specific to fecal material from humans and other warm-blooded animals. EPA recommends E. coli as the best indicator of health risk from water contact in recreational waters; some states have changed their water quality standards and are monitoring accordingly.

Enterococci are a subgroup within the fecal streptococcus group. Enterococci are distinguished by their ability to survive in salt water, and in this respect they more closely mimic many pathogens than do the other indicators. Enterococci are typically more human-specific than the larger fecal streptococcus group. EPA

recommends enterococci as the best indicator of health risk in salt water used for recreation and as a useful indicator in fresh water as well.

Which bacteria you test for depends on what you want to know. Do you want to know whether swimming in your stream poses a health risk? Do you want to know whether your stream is meeting state water quality standards?

Studies conducted by EPA to determine the correlation between different bacterial indicators and the occurrence of digestive system illness at swimming beaches suggest that the best indicators of health risk from recreational water contact in fresh water are *E. coli* and enterococci. For salt water, enterococci are the best. Interestingly, fecal coliforms as a group were determined to be a poor indicator of the risk of digestive system illness. However, many states continue to use fecal coliforms as their primary health risk indicator.

If your state is still using total or fecal coliforms as the indicator bacteria and you want to know whether the water meets state water quality standards, you should monitor fecal coliforms. However, if you want to know the health risk from recreational water contact, the results of EPA studies suggest that you should consider switching to the *E. coli* or enterococci method for testing fresh water. In any case, it is best to consult with the water quality division of your state's environmental agency, especially if you expect them to use your data.

text below was copied from

<http://emedicine.medscape.com/article/219907-overview>

Klebsiellae are ubiquitous in nature.

Klebsiellae are also important in nosocomial infections among adult and pediatric populations. Klebsiellae account for approximately 8% of all hospital-acquired infections. In the United States, depending on the study reviewed, they comprise 3-7% of all nosocomial bacterial infections, placing them among the top 8 pathogens in hospitals. Klebsiellae cause as many as 14% of cases of primary bacteremia, second only to *Escherichia coli* as a cause of gram-negative sepsis. They may affect any body site, but respiratory infections and UTIs predominate.

Of 145 reported epidemic outbreaks of nosocomial bacteremias during 1983-1991, 13 were attributed to *Klebsiella* organisms. The US Centers for Disease Control and Prevention report that *Klebsiella* strains were responsible for 3% of all pathogenic epidemic outbreaks.

K. oxytoca is among the top 4 pathogens that cause infection in patients in neonatal intensive care units. It is the second most frequent cause of gram-negative neonatal bacteremia.

<http://emedicine.medscape.com/article/219907-overview>

Thank you for your consideration.

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