



A COOPERATIVE STRATEGY FOR RESOURCE MANAGEMENT & PROTECTION

November 5, 2008
Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Subject: Comment Letter – Bacterial Standards for REC-1 Waters

Dear Ms. Townsend,

Members of the Calleguas Creek Watershed Management Plan have been actively collaborating with Los Angeles Regional Water Quality Control Board staff in developing a Bacteria TMDL for the watershed. The watershed's Bacteria TMDL working group appreciates the opportunity to comment on the statewide bacterial objective for water contact recreation in fresh waters of California. The working group feels that revisions to the bacterial standards for REC-1 waters are needed and supports the evaluation being proposed by the State Water Resources Control Board (SWRCB). The working group is providing comments on the possible options provided by the SWRCB in their CEQA scoping document dated September 4, 2008. The comments include comments on the included elements of the CEQA scoping document, and comments on elements that we feel were not covered in the CEQA scoping document and should be considered.

General Comments

It is important for the SWRCB to consider the nature of fresh waterbodies (especially in Southern California) in adopting REC1 objectives. Many Southern California fresh waterbodies are seasonal, shallow, concrete-lined, and inaccessible due to vertical sides, fences, and locked gates. The seasonal nature of Southern California rivers and streams is such that during dry weather the flow is very low, whereas following storm events the flow becomes very high and causes conditions unsafe for recreation. Due to these factors, the majority of REC1 uses in Southern California do not take place in fresh waters. This has several implications for setting

bacteriological water quality standards. We support these factors be taken into consideration in the development of Statewide standards. In the following sections we will describe why they are specifically important to Southern California.

Element 1. Bacterial Indicators

The working group supports consideration of all of the potential issues presented in this element. In particular, the working group supports rescinding existing fecal coliform objectives. Many studies, including the EPA epidemiological studies, show that fecal coliform is not a good indicator of swimming-associated human illness. Therefore it is inappropriate to apply fecal coliform objectives or criteria for the protection of human health. Conversely, studies have shown a relationship exists between *E. coli* and *enterococcus* indicators and human illness, therefore *E. coli* or *enterococcus* objectives are appropriate to use for the protection of human health. We do not, at this time, recommend the adoption of one of these indicators over the other, however we do recommend that the Statewide objective include a clear position on what should take place when EPA develops a new criteria document to replace the 1986 document, and that the SWRCB will address any changes in EPA criteria in a timely manner. If after careful scientific review EPA adopts an *enterococcus* or *E. coli* criteria, a state fecal coliform criteria may focus state implementation measures on alternatives that are less protective of human health.

Additionally, the working group supports the establishing of objectives based on reference conditions, to allow for consideration of the presence of natural sources of indicator bacteria in the environment. The sources of indicator bacteria in the environment can come from natural or open space land uses, or may also grow and reproduce in the waterbody itself. In light of the former natural source of bacteria, the working group supports the use of a natural sources exclusion approach and the use of a reference system/antidegradation approach. In several Bacteria TMDLs adopted by the LARWQCB (Santa Monica Bay Beaches Wet and Dry, Malibu Creek, Ballona Creek) implementation of the Basin Plan indicator bacteria objectives and the TMDL numeric targets will be achieved using a reference system / antidegradation approach. Overall, the exceedance day approach to targets and allocations is an innovative and desirable approach for bacteria TMDL implementation, however, there are several additional considerations with regard to implementation of the approach, and flexibility to address these types of local issues must be built into the use and implementation of reference system/antidegradation approaches statewide:

1. The use of a beach as a reference site is not appropriate for inland water bodies. Rather, an inland reference site or sites should be selected. Data is available for several inland stream reaches with open space drainages in Ventura and LA Counties, and in the CCW itself from stakeholder and Southern California Coastal Water Research Project (SCCWRP) studies.
2. The use of the LAX precipitation station is not appropriate for a Ventura County watershed. A precipitation station local to the CCW or appropriate reference site(s) should be selected. Rainfall amounts vary substantially in southern California, especially between coastal and mountain areas, but also north and south throughout the region. The number of exceedance days is highly dependant on the number of rain days used in the

calculation. To determine the number of allowable exceedances for the CCW, it is necessary to more accurately characterize local rainfall conditions.

3. Dry weather allocations should be based on the 90th percentile critical dry weather year, not the wet weather year. The year 1993 was chosen as the reference year because it is the 90th percentile year in terms of wet weather days. The reasoning for choosing this year is so that the reference site is not frequently exceeding the allowable exceedance days. However, using the same reference year for both wet weather and dry weather results in a situation where the reference site can be expected to exceed its allowable number of dry weather exceedances in 9 out of 10 years. Rather than using the same reference year to calculate the number of allowable exceedances for both wet weather and dry weather, the same analysis should be conducted to determine the reference year for dry weather based on the 90th percentile year in terms of summer and winter dry weather days.

Element 2: Level of Protection for Water Contact Recreation

The working group supports the evaluation of the appropriate risk level for protection of water contact recreation. We would also like the SWRCB to consider allowing for the use of implementation methods or other mechanisms than indicator bacteria for ensuring protection in the waterbody to the level of risk designated. If the purpose of indicator bacteria objectives is to protect a level of risk of a certain number of illnesses per 1,000 people, it would be appropriate to make the objective itself be the level of risk. The objective could be assessed in a number of ways, including Bacteroidales or implementation actions that removed human sources of pathogens.

Element 9: Site-Specific Objectives

The working group supports the inclusion of provisions that allow for calculation of site-specific objectives. As discussed in the following sections, Southern California waterbodies (and likely other areas of the state) have conditions that make the ability to develop site-specific objectives important.

EPA's 1986 Ambient Water Quality Criteria for Bacteria (USEPA, 1986) presents potential single sample maximum (SSM) allowable densities for bacteria indicators in Table 4 of that document. These SSMs are calculated as one-sided confidence limits about the recommended geometric mean (geomean) criteria. The selected confidence levels are associated with level of use intensities that correspond to the chance of leaving a beach open when protection is adequate. By selecting confidence levels for different intensities of recreational use, multiple SSMs may be calculated and assigned where appropriate based on the intensity of use. In the LARWQCB, all SSM objectives are based on the use intensity of designated beach areas, though many, if not most, of the Region 4 REC1 waters are not designated beaches, nor do they demonstrate the intensity of use found at designated beaches. Therefore, it is inappropriate for this SSM to apply in these locations.

It is recommended that the SWRCB allow for the calculation of site specific SSMs depending on the level of use, based on the qualitative descriptions and confidence levels described in EPA's

Criteria Document. If no qualitative level of use is described in the document that is appropriate for the level of use found at an individual water body, then an SSM should be calculated using the equation found in EPA's Criteria Document based on an a higher confidence level.

Element 10: Implementation of Bacterial Objectives in Regards to TMDLs

The working group supports the use of a reference system/antidegradation approach or natural sources exclusion approach to implementing bacterial objectives in TMDLs. However, as discussed above, we feel that this approach should be given broader consideration and included as an option in the bacterial standards themselves, not just in the context of TMDLs.

Additional Elements for Consideration

The CEQA scoping document does not address beneficial uses and the importance of accurately characterizing uses when developing objectives to appropriately protect for human health concerns. In developing statewide bacteria objectives, the SWRCB should consider the following items (discussed in more detail in the following sections):

1. Suspension of bacterial standards during high flows when recreation is unsafe.
2. Evaluation of the current recreational uses categories to more accurately reflect the way waterbodies are used for recreation.

Suspension of standards during high flows

Due to the physical nature of Southern California rivers and streams, a high flow suspension of recreational uses should be included with the objective. As indicated above, following rainfall events, Southern California rivers and streams experience high flow conditions that can be dramatically larger than the dry weather flows experienced in the same reaches. High flows are experienced in both concrete-lined and natural channels as the waterbodies serve as transport systems for runoff from natural and urbanized areas. The physical characteristics of these storm flows create unsafe conditions in rivers and streams such that they do not support any recreational uses. The water volume and velocities experienced during storm flow are such that water contact recreational uses are inherently unsafe in these conditions. Non-contact recreational uses are also unsafe such that any incidental water contact occurring during the activity would result in the same unsafe situation experienced during water contact recreation. Because of these physical characteristics, REC1 and REC2 uses do not exist in rivers and streams during high flow conditions. During high flow conditions REC1 and REC2 bacterial indicator WQOs should be suspended. High flow conditions should be defined for this purpose, such that it is clear when the WQOs apply. The criteria could be based on a defined percentile flow from average dry flow conditions or could be set as a certain time period following a defined amount of rainfall.

Evaluation of REC use categories

When evaluating the appropriate bacterial standards for use in California waterbodies, the SWRCB should consider both the types for recreational uses that are possible in fresh waters, and the levels of use that takes place where water contact recreation is possible.

The epidemiological studies described in EPA's 1986 Ambient Water Quality Criteria for Bacteria (EPA, 1986) were based on designated beach area, swimming-related illness rates, such that the geometric mean objectives presented in the Criteria Document are protective of water contact recreation where prolonged full body immersion takes place. In Region 4, there are many water bodies designated REC1 where this degree of body contact use cannot and does not take place, and the level of protection is unwarranted. Many inland freshwater water bodies are too shallow for full body immersion. This does not constitute the same degree of water contact targeted in EPA's criteria document. Because of this, it would be prudent to consider developing a third level of recreational use category for waterbodies where full body water contact does not take place, but water contact is more than incidental. Geometric mean objectives should be developed for this beneficial use category that are greater than the recommended geometric means for primary contact recreation, and less than those developed for secondary water contact recreation. Additionally, the calculation of geomeans could be broadened to include fewer than 5 samples, or to expand the averaging period. It may be appropriate to calculate seasonal geomeans for some water bodies.

As discussed in this letter, waterbody characteristics vary throughout the state and within regions. It is apparent that even within Southern California each watershed has individual characteristics and challenges to overcome in addressing bacterial impairments. It is imperative that in the development of Statewide bacterial objectives flexibility is built in to allow individual watersheds to address impairments with creative and innovative solutions, and that a long enough timeframe is allowed to give stakeholders the time to let these solutions play out. Bacterial impairments are complex to address, and this should be acknowledged in the promulgation of Statewide standards.

In summary,

- Fecal coliform objectives should be rescinded and replaced with either *E. coli* or enterococcus objectives.
- The nature of fresh waterbodies should be understood and taken into consideration when setting Statewide bacteria objectives. Factors to consider include,
 - A high flow suspension of recreational uses should be included in the implementation of the objective, and
 - The nature of water contact recreation in fresh waterbodies should be evaluated and used in determining geometric mean and single sample maximum objectives.
- Natural sources exclusions and reference system/antidegradation approaches should be allowed, and allowed to be customized to the individual watershed.
- Flexibility and creativity are needed in developing solutions to bacterial impairments, and long implementation periods are needed to implement the solutions.

Thank you for your consideration of these comments. If you have any questions, please feel free to contact Tracy Krueger at 310-394-1036.

Yours truly,

A handwritten signature in blue ink, appearing to read "Henry Frank". The signature is fluid and cursive, with a large initial "H" and a long, sweeping underline.

for Lucie McGovern, Chair
Calleguas Creek Watershed Bacteria TMDL Working Group

cc: Calleguas Creek Watershed Management Plan Steering Committee and Water Resources /
Water Quality subcommittee