



A COOPERATIVE STRATEGY FOR RESOURCE MANAGEMENT & PROTECTION

August 16, 2017

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-2000

Subject: Comment Letter – Bacteria Provisions

Dear Ms. Townsend:

The Stakeholders Implementing Total Maximum Daily Loads (TMDLs) in the Calleguas Creek Watershed (CCW) [hereinafter referred to as the Stakeholders] are writing to comment on the State Water Board's proposed Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE)—Bacteria Provisions and a Water Quality Standards Variance Policy and the Proposed Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan)—Bacteria Provisions and a Water Quality Standards Variance Policy (hereafter Bacteria Provisions).

The Stakeholders commend the efforts by the State Water Resources Control Board (State Water Board) in developing the Bacteria Provisions. These documents will help to standardize the state approach and further protect California waters and human health. As stated in the Staff Report¹, the Bacteria Provisions seek to establish consistent statewide water quality objectives (WQOs) for California waters using the 2012 USEPA Recreational Water Quality Criteria (hereinafter USEPA 2012 Criteria)² as a framework. The Bacteria Provisions are also meant to provide the Regional Water Quality Control Boards (Regional Water Boards) "*with tools and direction in addressing specific issues related to applying the Bacteria Objectives.*"

¹ Draft Staff Report, including the Draft Substitute Environmental Documentation, for the Bacteria Provisions. June 30, 2017.

² US EPA. 2012. Recreational Water Quality Criteria. Office of Water 820-F-12-058.

The Stakeholders support the SWRCB's efforts to update the state bacteria objectives and the variance policy. However, the Stakeholders feel there are changes which could provide improved guidance to Regional Water Boards, support more effective implementation of actions by the regulated community to protect human health, and allow more accurate and timely methods in response to advances in the available science. The Stakeholders have three categories of recommendations that are summarized below and detailed recommendations to the Bacteria Provisions and Staff Report are included in the attachment.

I. Make the Bacteria Provisions Adaptable to Changing Science

Fecal indicator bacteria are imperfect indicators of potential human health risk due to pathogens in receiving waters. As a result, a significant amount of effort is being applied in California and at the federal level to improve the methods available to protect human health. The Stakeholders feel that the Bacteria Provisions should be more flexible to incorporate the improvements in technology that have been validated and approved. To address this major point, the Stakeholders have the following recommendations:

- *Include a statement in the ISWEBE and Ocean Plan Amendments stating that the WQOs are set equal to a risk level that has been interpreted as the indicator bacteria concentrations listed in the amendment.*
- *Include an implementation provision that allows the use of human markers to demonstrate compliance with the objectives if approved by a Regional Water Board.*
- *Include authorization for alternative indicator thresholds to be used as objectives if they are established at an equivalent risk level to the E. coli and Enterococci objectives.*
- *Include an option to develop site-specific objectives via QMRA (Quantitative Microbial Risk Assessment) or an equivalent approach in both the ISWEBE and Ocean Plan Provisions.*
- *Update the Staff Report to provide guidance on how to develop and streamline adoption of site-specific objectives.*

II. Allow Regional Water Boards the Flexibility to Use All Available Tools

The Bacteria Provisions include a number of implementation options that will significantly improve the ability of the Stakeholders to effectively address long standing concerns with implementing actions to protect human health. However, in several cases, the Bacteria Provisions limit the applicability of the tools or require unnecessary analysis to use the tools. To address these concerns, the Stakeholders have the following recommendations:

- *Update the ISWEBE and Ocean Plan Provision Implementation language to allow the reference reach/antidegradation and natural source exclusion approaches to apply wherever a technical analysis has been approved by a Regional Water Board.*
- *Update the ISWEBE and Ocean Plan Provision Implementation language to allow the reference reach/antidegradation and natural source exclusion approaches to be applied to both the geometric mean (GM) and the statistical threshold value (STV).*
- *Provide guidance about how to apply the reference reach/antidegradation and natural source exclusion approaches in the Staff Report.*

- *Remove the requirement for a use attainability analysis (UAA) for high flow and seasonal suspensions in the ISWEBE Provisions in order to comply with the Code of Federal Regulations (CFR).*
- *Establish the high flow and seasonal suspensions as implementation provisions of the objectives and include thresholds for application of the suspensions.*
- *Suspend REC-2 objectives when high flow or seasonal suspensions apply.*

III. Clarify Elements of Bacteria Provisions to Support Implementation

In addition to the modifications listed above, there are a number of clarifications and applications of the Bacteria Provisions that will more effectively support implementation. These issues include clearly analyzing and developing separate implementation provisions for wet weather conditions from dry weather conditions, using the objectives based on the higher illness rate for inland waters, clarifying the application of the salinity threshold, and clearly designating the purposes of the two Ocean Plan objectives. The specific recommended elements to support implementation include:

- *Remove the language in the Bacteria Provisions requiring “equally spaced” sampling for the GM and STV.*
- *Conduct a 13241 analysis specific to wet weather and modify the objectives for wet weather if necessary after the analysis.*
- *Exclude wet weather events from GM calculations and state that only the STV should apply for wet weather events.*
- *Conduct a 13241 analysis specific to the two NGI³ risk levels proposed in the USEPA 2012 Criteria and detail the findings in the Staff Report.*
- *Endorse the use of 36 illnesses per 1,000 recreators in the ISWEBE Provisions.*
- *Update the language in the ISWEBE regarding salinity such that the threshold represents discrete classifications for the two indicators.*
- *If a text change to clarify the salinity threshold is not completed, provide guidance on how to handle waterbodies that do not distinctly fall into either the fresh or salt water category.*
- *Update the language in Ocean Plan Provisions so that the WQOs which apply to the NDPES permits are clearly listed as the new State Water Board Water-Contact Objectives by inserting “(II.B.1.a)” after the word “objectives” in section III.D.1.a.*
- *Clarify that the California Department of Public Health AB411 objectives should only be utilized for beach posting purposes.*

The Stakeholders recognize the large amount of work that went into developing the Bacteria Provisions, and we appreciate the opportunity to participate in the working groups. The Stakeholders support the efforts already made by the State Water Board and continue to support them in the finalization of the Provisions. The intent of our comments is to further improve the Provisions so that they can be best utilized by the Regional Water Boards to protect human health. If you have questions, please contact Ashli Desai at (310) 394-1036 / AshliD@lwa.com or me at (805) 388-5334.

³ NGI = National Epidemiological and Environmental Assessment of Recreational Water gastrointestinal illness rate

Comment Letter – Bacteria Provisions

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Sincerely,



Lucia McGovern

Chair of Stakeholders Implementing TMDLs in Calleguas Creek Watershed

Enclosure: *Detailed Recommendations to the Bacteria Provisions and Staff Report*

cc: Nick Martorano, SWRCB
Stephanie Rose, SWRCB
Michael Gjerde, SWRCB

Detailed Recommendations to the Bacteria Provisions and Staff Report

I. Make the Bacteria Provisions Adaptable to Changing Science

Comment 1: Clarify that the proposed WQOs are based on a protective level of risk.

The USEPA has a long record of establishing recreational criteria based on the risk of illness. The USEPA published recommended recreational water quality criteria in 1986 that established the ambient condition of a recreational waterbody necessary to protect the designated use of primary contact recreation.⁴ Criteria values were selected for *E. coli* and Enterococci in order to carry forward the same level of public health protection that was believed to be associated with the USEPA's previous criteria recommendations⁵ based on fecal coliform. The USEPA carried forward this risk-based approach in its 2012 Criteria development. Elevated levels of indicator bacteria were linked to increased risk of gastrointestinal illness through epidemiological studies conducted by USEPA during the National Epidemiological and Environmental Assessment of Recreational Water (NEEAR)⁶, and the 2012 Criteria were established to carry forward the risk-based approach to setting indicator level bacteria, similar to the 1986 Criteria. Although the risk levels were the driver for selecting appropriate indicator levels, the only mention of risk in both the ISWEBE and Ocean Plan Provisions occurs in the header of the WQOs table. The Staff Report includes some minor discussion of risk but nowhere is the relationship between the proposed risk level and WQOs adequately described. Since the risk level is the driving mechanism to protect human health, it should be clearly described in the Bacteria Provisions and Staff Report.

The science of recreational water quality is rapidly developing and research in Southern California has been at the forefront of new scientific advancements. These advancements have increased the number of pathogens and indicators that can be measured in recreational waters, lowered the cost of those measurements, and increased the reliability of health risk estimates at local sites based on site-specific data. The ultimate goal of recreational water quality improvement programs is to reduce the risk of illness to recreators, as opposed to being solely focused on reducing densities of fecal indicator bacteria. Incorporating a risk discussion into the Bacteria Provisions and Staff Report will allow the amendments to be adaptable to the evolving science in the event that a better indicator becomes available.

Thus, the Stakeholders request that the State Water Board include a clear statement within the Bacteria Provisions that *E. coli* and Enterococci WQOs are the fecal indicator bacteria concentrations designated to represent the risk of illness that is protective of human health for the

⁴ USEPA. 1986. EPA's Ambient Water Quality Criteria for Bacteria – 1986. Washington, DC. EPA440/5-84-002.

⁵ USEPA. 1976. Quality Criteria for Water. U.S. Environmental Protection Agency: Washington, DC.

⁶ USEPA, 2010a. Report on 2009 National Epidemiologic and Environmental Assessment of Recreational Water Epidemiology Studies. Office of Research and Development. EPA-600-R-10-168.

USEPA, 2010b. Quantitative Microbial Risk Assessment to Estimate Illness in Fresh water Impacted by Agricultural Animal Sources of Fecal Contamination. EPA 822-R-10-005.

REC-1 beneficial use. The Stakeholders also request that the statement clarify that Regional Water Boards can establish alternative methods of demonstrating that the risk level established in the Bacteria Provisions is being attained.

As an example of the alternative methods that could be used to demonstrate that the risk level is being attained, the Stakeholders request that the amendments acknowledge the use of human markers as part of the compliance pathways for the objectives. Numerous studies have established that human sources of bacteria pose the most risk to human health.⁷ Methods for reducing human sources of bacteria are not always aligned with the methods necessary to reduce fecal indicator bacteria. The implementation procedures for the objectives should allow for a demonstration that human markers are absent or below thresholds that would increase the risk to human health to be used as a demonstration of compliance with the WQOs.

Recommendation:

- *Include a statement in the ISWEBE and Ocean Plan Amendments stating that the WQOs are set equal to a risk level that has been interpreted as the indicator bacteria concentrations shown in the amendment.*
- *Include an expanded discussion of the risk level as described in the 2012 USEPA Criteria in the Staff Report.*
- *Include an implementation provision for the objectives that allows the use of human markers to demonstrate compliance with objectives if approved by a Regional Water Board.*

Comment 2: Amendments should include the possibility of using alternative indicators as supported by the most current scientific research.

The Bacteria Provisions endorse the use of *E. Coli* and Enterococci as indicators for fresh and marine waters, respectively. The Stakeholders support the inclusion of *E. Coli* and Enterococci as the sole fecal indicator bacteria to be used for assessment of the risk of illness established by the objectives. *E. Coli* and Enterococci should supersede the use of fecal coliform and total coliform as they are better indicators of human illness, as discussed in the USEPA 2012 criteria. However, the field is rapidly evolving and the Bacteria Provisions should be written to be adaptable to future scientific advances. In addition, the Staff Report should also be amended to include a discussion of alternative indicators of risk. The USEPA 2012 Criteria includes a section discussing alternative indicators or methods to assess risk (Section 6.2.3 p. 51) which should be cited in both the Bacteria Provisions and Staff Report:

“EPA anticipates that scientific advancements will provide new technologies for enumerating fecal pathogens or [fecal indicator bacteria]. New technologies may provide alternative ways to address methodological considerations, such as rapidity, sensitivity, specificity, and method performance. As new or alternative indicator and/or enumeration method combinations are

⁷ Southern California Coastal Water Research Project (SCCWRP). 2016. The Surfer Health Study: A Three-year Study Examining Illness Rates Associated with Surfing During Wet Weather. Technical Report 943.

developed, states may want to consider using them to develop alternative criteria for adoption in WQS.”

The Stakeholders propose that the following language be included the Bacteria Provisions:
“Regional Water Boards may use alternate indicators of risk that are equivalent or better than E. coli and Enterococci in assessing risk associated with human illness within a waterbody as long as they are supported by the most current scientific understanding.”

In addition, the Stakeholders request that the Staff Report be amended to provide guidance to the Regional Boards on using alternative indicators. The 2014 USEPA report⁸ for developing alternative indicators would serve as a good reference for this updated section.

Recommendation:

- *Include a statement in the ISWEBE and Ocean Plan Amendments endorsing the use of alternative indicators of risk as supported by the most current science.*
- *Include authorization for alternative indicator thresholds to be used as objectives if they are established at an equivalent risk level to the E. coli and Enterococci objectives.*
- *Update language in the Staff Report to provide guidance and allow the use of alternative indicators of risk.*

Comment 3: Amendments should include the option to develop site-specific objectives using procedures outlined in the USEPA 2012 Criteria.

The ISWEBE Plan includes language that bacteria WQOs do not supersede any site-specific numeric water quality objective for bacteria established for the REC-1 beneficial use (ISWEBE Provisions III. E.3). However, the Ocean Plan Provisions do not include similar language. Furthermore, neither Provision includes a discussion for developing site-specific objectives. Such an approach was encouraged in the USEPA 2012 Criteria (e.g. Quantitative Microbial Risk Assessment [QMRA]), which includes the following language:

“States could adopt site-specific alternative criteria to reflect local environmental conditions and human exposure patterns” and include examples of tools to develop the site-specific numeric values: “(1) an alternative health relationship derived using epidemiology with or without QMRA; (2) QMRA results to determine water quality values associated with a specific illness rate; or (3) a different indicator/method combination.” (USEPA 2012 Criteria, p. 48)

The Stakeholders strongly encourage the State Water Board to include implementation language supporting the development of site-specific objectives within the Bacteria Provisions as well as more detailed guidance in the Staff Report as that will streamline adoption of site-specific objectives if conducted.

⁸ USEPA. 2014. Site-Specific Alternative Recreational Criteria Technical Support Materials for Alternative Indicators and Methods. Office of Water and Science and Technology Health and Ecological Criteria Division. EPA-820-R-14-011

Recommendation:

- *Include an option to develop site-specific objectives via QMRA or an equivalent approach in both the ISWEBE and Ocean Plan Provisions.*
- *Update the Staff Report to provide guidance on how to develop and streamline adoption of site-specific objectives.*

II. Allow Regional Water Boards the Flexibility to Use All Available Tools

Comment 4: Allow the reference reach/antidegradation approach and natural sources exclusion approach to be applied to all waterbodies.

The Stakeholders support the use of the reference reach/antidegradation approach or natural sources exclusion approach which will provide Regional Water Boards with the flexibility to adapt the WQOs to their specific regions. However, the extent of these implementation approaches appears to be limited to only waterbodies with a TMDL as noted in Staff Report:

“The reference system/antidegradation approach and the natural sources exclusion approach are appropriate within the context of a TMDL. The TMDL process includes the robust analysis necessary to characterize bacteria sources and it provides an appropriate venue for determining the appropriateness of applying either approach.”

The Stakeholders strongly disagree with this limitation and recommend that these implementation tools be expanded to waterbodies which do not have an existing TMDL or TMDL in development. The reference system/antidegradation approach is already available in the Los Angeles Basin Plan, but the Stakeholders cannot use it because a TMDL has not yet been developed for the watershed. However, the Stakeholders would prefer to address the remaining impairments in the watershed prior to a TMDL being developed. The Stakeholders are currently developing a coordinated implementation plan with the intention of addressing constituents in the six existing Calleguas Creek Watershed TMDLs and 303(d) listings, including bacteria. The approach included an in depth analysis of indicator bacteria sources throughout the watershed and the reference reach analysis approved in a TMDL for a neighboring watershed (Santa Clara River). If the reference reach/antidegradation analysis approach is not allowed, the Stakeholders would be subject to addressing natural sources and have more significant costs than other dischargers simply because they do not have a TMDL. The analysis conducted for the implementation plan to meet the Los Angeles Regional Water Board’s reasonable assurance analysis requirements indicates that stormwater best management practices (BMPs) would need to be designed to capture stormwater volumes up to 17 greater than would be required if the reference reach approach were allowed.

It is inappropriate for such dischargers to not have the same tools available to them when they are actively working to remove impairments ahead of TMDL development. In Southern California, the same reference reach studies have been used in all regions and the allowable exceedance days have been consistently applied to all TMDLs in the Los Angeles Region.

Therefore, it is straightforward to utilize the existing studies in a consistent manner in watersheds that do not have a bacteria TMDL. The requirement for this tool to only be used in the context of a TMDL may force Regional Water Boards and their constituents to develop TMDLs in places that could be more quickly and effectively addressed without a TMDL.

While the Stakeholders agree that the TMDL represents a robust analysis process to determine the alternative implementation approaches, it is not the only scenario that allows for such an assessment. Regional Water Boards should be allowed to oversee and approve robust reference system/antidegradation and natural sources exclusion approaches as they deem appropriate. Expanding the implementation tools to all waterbodies will allow for more flexible and cost effective implementation options, faster and more complete protection of human health, and availability of all regulatory tools to address bacteria in all waterbodies.

Recommendation:

- *Update the ISWEBE and Ocean Plan Provision Implementation language to allow the reference reach/antidegradation and natural source exclusion approaches to apply wherever a technical analysis has been approved by a Regional Water Board.*

Comment 5: Allow the reference reach/antidegradation approach and natural sources exclusion approach to be applied to both the STV and GM.

As stated in the previous comment, the Stakeholders support the use of these alternative implementation measures, however, the limitation that they only apply to the STV is unnecessary and not based in sound science. During the staff workshop, it was mentioned by Water Board staff that the STV was the only endpoint that was likely to see exceedances in reference reaches. The Stakeholders disagree with this perspective and note that reference reach studies in Southern California have shown that GM exceedances are observed in primarily natural watersheds. At the Leo Carrillo reference site that has been used for most of the TMDLs in the region, the geometric mean is exceeded over 6% of the time. The justification in the Staff Report for the application of alternate implementation measures for the STV only includes the following:

“By allowing an exceedance of the STV, but not the geometric mean, the data distribution of the water quality associated with the geometric mean is not changed and thus the level of protection is not changed. The STV is a percentile of the expected water quality sampling distribution of the GM objective value that is set at a 90 percentile, so that 90 percent of the distributed data is below the STV and 10 percent is above the STV. In the reference system/antidegradation and natural source exclusion approaches, the STV can change to a different percentile of the distributed data, but the geometric mean remains, ensuring the same level of protection of water quality.”

The Stakeholders feel this description does not adequately justify the reasons for not applying the approach to the GM. The data distribution will remain unchanged regardless of whether the STV and/or the GM are exceeded. As mentioned in previous comments the basis for the Bacteria Provisions is to provide a protective level of risk for human health. Reference reach/antidegradation and natural source exclusion approaches are intended to provide Regional

Water Boards flexibility in meeting the protective level of risk. If an area experiences high levels of natural indicator bacteria, which in many cases have been shown to cause lower rates of illness rates than anthropogenic sources of indicator bacteria⁹, then an exceedance of the GM and/or STV may still be protective of the USEPA derived risk-based illness rate. In such cases, the water quality objectives may not be able to be attained due to uncontrollable natural sources but human health may still be protected. Such determinations must be made only after analysis of the reference reach or natural source exclusion study data. Thus, Regional Water Boards should be given the discretion to determine if the reference reach/antidegradation approach and natural source exclusion can apply to both the GM and STV.

The Stakeholders encourage the State Water Board to provide guidance in the Staff Report about how to execute reference reach/antidegradation and natural source exclusion approaches and not limit their applicability to only the STV.

Recommendation:

- *Update the ISWEBE and Ocean Plan Provision Implementation language to allow the reference reach/antidegradation and natural source exclusion approaches to be applied to both the GM and the STV.*
- *Provide guidance about how to apply the reference reach/antidegradation and natural source exclusion approaches in the Staff Report.*

Comment 6: Remove the requirement for the Use Attainability Analysis in the implementation of high flow and seasonal suspensions of REC-1 objectives in the ISWEBE Provisions.

The Stakeholders appreciate and support the inclusion of high flow and seasonal suspensions of REC-1 beneficial uses as an implementation option in the Bacteria Provisions. However, the Bacteria Provisions do not provide sufficient guidance to the Regional Water Boards on the implementation of these suspensions apart from requiring a use attainability analysis (UAA). Furthermore, requiring a UAA would create a large burden on the regulated community leading to infrequent use of this implementation option, when the intent of the high flow suspension provision is meant to provide temporary regulatory relief when beneficial uses are precluded. According to the Code of Federal Regulations (CFR 40 §131.10(j)) UAAs are only required in two situations: (a) when a state designates a new a beneficial use or (b) when a state wishes to remove a designated use or subcategory of the use or designate a subcategory of such a use that requires criteria less stringent than previously applicable. The Stakeholders maintain that a UAA is not required by the CFR because high flow suspensions do not remove a designated use or put in place less stringent criteria, but rather address the temporal appropriateness of the water quality objective when attainment of recreational beneficial use is not applicable for a period of time and not permanently changed.

⁹ USEPA 2012 Criteria Sources: Roser et al., 2006; Schoen and Ashbolt, 2010; Soller et al., 2010b; Till and McBride, 2004; WERF, 2011.

The Staff Report incorrectly states that the Los Angeles Regional Board is the only Regional Water Board that has adopted a high flow suspension to their Basin Plan. The Santa Ana Region Basin Plan also incorporated a high flow suspension as an implementation action which was developed with extensive stakeholder input and approved by both the USEPA and State Water Board.¹⁰ Importantly, the Santa Ana Regional Water Board implementation action was approved by USEPA and adopted into the regional Basin Plan by the State Water Board without a UAA. Neither the Santa Ana Region Basin Plan nor the Staff Report for the Basin Plan Amendments¹¹ contains explicit mention of the completion of a UAA in the development of the high flow suspension provision. The Staff Report for the Basin Plan Amendments further states, “temporarily suspending recreational uses due to inclement weather is analogous to adopting seasonal uses.” Thus, it appears that UAAs are not legally required for a suspension to be implemented if the suspension is incorporated as an implementation provision of the objectives.

The Stakeholders request that the State Water Board remove the requirement for a UAA to allow Regional Water Boards the option to adopt high flow and seasonal suspensions in the same manner as the Santa Ana Regional Board via an implementation action. The Stakeholders also request that the Staff Report be updated to include mention of high flow suspension adoption in the Santa Ana Region Basin Plan.

Additionally, the Stakeholders request that the State Water Board establish the high flow and seasonal suspensions as implementation provisions of the objectives, consistent with the Santa Ana Regional Board approach, with thresholds (e.g., velocity or depth) that would meet the criteria for the suspension. This way Regional Water Boards could develop information on when and where the suspensions apply in waterbodies within their region that is specific to the local hydrologic and climate conditions. Resources such as *Methods for Assessing Instream Flows for Recreation*¹² and others have provided information on thresholds for velocity and depth for various beneficial uses that can be used to develop thresholds for the suspensions that could apply statewide. This approach would facilitate the consistent use of the suspensions statewide in a manner that is more feasible than conducting UAAs.

Recommendation:

- *Remove the requirement for a UAA for high flow and seasonal suspensions in the ISWEBE Provisions in order to comply with the CFR.*
- *Update the Staff Report to include the high flow suspension implementation option from the Santa Ana Region Basin Plan.*
- *Establish guidance to provide statewide consistency in implementation and streamline development of the suspensions.*

Comment 7: Suspend REC-2 objectives when high flow or seasonal suspensions apply.

¹⁰ State Water Resources Control Board Resolution No. 2014-0005.

¹¹ Staff Report, Basin Plan Amendments, Revisions to Recreational Standards for Inland Fresh Surface Waters in the Santa Ana Region. January 12, 2012.

¹² Cooperative Instream Flow Services Group, Instream Flow Information Paper No. 6, June 1978.

The Bacteria Provisions state that REC-2 water quality objectives shall remain in effect during a high flow suspension. However, the Staff Report notes several times in Section 5.3.2 that REC-1 and REC-2 beneficial uses are not fully attainable during high flow events that justify the suspension of REC-1 objectives. This is recognized in the Santa Ana Region Basin Plan, which temporarily suspends REC-1 and REC-2 objectives when high flows prevent safe recreation. The Stakeholders recommend that REC-2 water quality objectives also be suspended during events where REC-1 objectives are suspended.

Recommendation:

- *Suspend REC-2 objectives when high flow or seasonal suspensions apply.*

III. Address Outstanding issues with Bacteria Objectives

Comment 8: Provide flexibility in the calculation of the geometric mean.

The Stakeholders support the use of a six-week geometric mean (GM) which allows flexibility in monitoring programs especially when sampling events are affected by uncontrollable weather events and/or laboratory issues. However, some of the language in the Bacteria Provisions appears to limit the flexibility of monitoring programs. For example, in the ISWEBE Provisions, there is language stating “*the geometric mean values shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples **equally spaced** over a six-week period.*” [emphasis added]

The requirement for equal spacing of the samples places a burden on sampling programs especially if weather or other uncontrollable circumstances result in loss of a sample. Furthermore, the Staff Report states that the Bacteria Provisions are not intended to act as a disincentive for permittees to sample more frequently. Requiring equal spacing of samples would make more frequent sampling following an exceedance difficult.

Recommendation:

- *Maintain the 6-week averaging period for the geometric mean.*
- *Remove the language in the Bacteria Provisions requiring “**equally spaced**” sampling for the GM and STV.*

Comment 9: Bacteria Provisions should distinguish between wet and dry conditions.

The Stakeholders are concerned that there is no distinction between wet and dry conditions in the Bacteria Provisions. There are many areas throughout the state which experience sporadic and limited rainfall. When these infrequent wet weather conditions do occur, they result in high concentrations of pollutants, including bacteria, such that meeting dry-weather derived WQOs is more costly and potentially not feasible. Compliance determinations of wet and dry weather often occur separately when the objectives are applied; therefore, methods for appropriately distinguishing weather-specific objectives should be established. For example, the Los Angeles

Water Board has adopted many bacteria TMDLs¹³ that include separate allocations for summer dry, winter dry, and wet weather conditions based on the large changes in bacteria loading under each of these weather and seasonal conditions.

Under the California Water Code (Section 13241), the State and Regional Water Boards are required to consider a number of factors when adopting WQOs, including in relevant part here: consideration of past, present and probable future beneficial uses of water; and consideration of the water quality condition that could reasonably be achieved through coordinated control of all factors which affect water quality in the area. The Staff Report should include appropriate information separately for wet and dry weather events to ensure that the State Water Board has all of the necessary information to consider the required 13241 factors. Dry and wet weather have different foreseeable methods of compliance that could impact the analysis of the water quality that could be reasonably achieved. As part of the implementation plan development, the Stakeholders evaluated a number of strategies for reducing bacteria loads to meet objectives during dry weather and wet weather separately. During dry weather, many potential strategies were identified, but during wet weather, only infiltration or capture and reuse were identified as possible options to meet the objectives for stormwater and agricultural dischargers. In some areas of the watershed, implementation of these strategies may be very costly or infeasible due to poor soil conditions and a lack of locations available to install treatment. Without a separate evaluation, the State Water Board analysis does not adequately assess the ramifications of compliance with the objectives during wet weather. In short, such considerations might result in requirements for wet weather that may not be possible to achieve.

Further, implementation provisions for WQOs should clearly define implementation requirements for both wet and dry weather. The implementation procedures should be developed based on the 13241 analysis results, consideration of the underlying science used to develop the objectives, consideration of the short duration of storm events, and the associated potential impacts to beneficial uses. Establishing water quality objectives should assess the ecological impact of wet weather exceedances and establish associated implementation procedures that account for allowable exceedances and impacts that occur as a result of the exceedance during wet weather as distinct from dry weather. It is unclear if the implementation provisions meet the requirements for a Program of Implementation as required by Section 13241.

In order to address this issue, the Stakeholders recommend the Bacteria Provisions be amended to exclude wet weather events from GM calculations and only apply the acute STV endpoint to wet weather events. The epidemiological studies that were the basis for the USEPA 2012 Criteria were used to establish relationships with indicator bacteria collected during dry weather. Wet weather events are sporadic, short term events that do not have lasting impacts on bacteria water quality in receiving waters. As a result, wet weather data is not appropriate to be considered in the longer term conditions represented by the GM. Because the GM and STV both offer the same level of risk protection, using only the STV for wet weather conditions will

¹³ Reconsideration of Certain Technical Matters of the Santa Monica Bay Beaches Bacteria TMDLs; the Marina del Rey Harbor Mothers' Beach and Back Basins Bacteria TMDL; and the Los Angeles Harbor Inner Cabrillo Beach and Main Shop Channel Bacteria TMDL: - Staff Report – Los Angeles Water Board.

not result in increased risk to human health and will be more representative of the impact from wet weather events.

Recommendation:

- *Conduct a 13241 analysis specific to wet weather and modify the objectives for wet weather if necessary after the analysis.*
- *Exclude wet weather events from GM calculations and state that only the STV should apply for wet weather events.*

Comment 10: The selected risk level should be set at 36 illnesses per 1,000 water contact recreators for inland waters.

The USEPA 2012 Criteria was based on an extensive review of available scientific literature and public review to arrive at two NGI¹⁴ risk levels which would be protective of contact recreation. As stated in the Criteria document: “*EPA recommends that states make a risk management decision regarding illness rate which will determine which set (based on illness rate selected) of criteria values are most appropriate for their waters. The designated use of primary contact recreation would be protected if either set of criteria ... is adopted into state WQS and approved by EPA.*” [emphasis added]

The State Water Board endorsed the NGI risk level of 32 illnesses per 1,000 water contact recreators in the proposed Bacteria Provisions stating that “*while both recommended illness rates are considered protective of public health, the 32 NGI per 1,000 would require a more stringent threshold for Fecal Indicator Bacteria,*” (Staff Report, p. 69).

In choosing between the two risk levels the State Water Board is required to include economic considerations of water quality conditions that could reasonably be attained through coordinated control of all factors affecting water quality. In this analysis, the State Water Board should distinguish between the selection of either the 32 or 36 illnesses per 1,000 water contact recreators. Such an analysis does not appear to have been completed. Chapter 10 of the Staff Report includes economic considerations for the chosen risk level but not a comparison between the two. The Stakeholders feel if this analysis had been conducted for inland waters, the selection of a lower risk level may not have been warranted for inland waters given the lower levels of recreational uses as compared to beaches. Since both risk levels are protective of public health as stated by USEPA the higher risk level of 36 illnesses should receive equivalent consideration. Endorsing the lower risk level simply because it is more conservative without consideration of impacts to the regulated community is not defensible without a supporting analysis.

Furthermore, because both risk levels are protective of public health, the Stakeholders recommend using 36 illnesses per 1,000 recreators as the basis for the Bacteria Provisions WQOs for the ISWEBE provisions. Overburdening the regulated community to address indicator bacteria beyond a limit needed to protect human health is onerous and depletes valuable public funds which could otherwise be used to address other pressing water quality issues.

¹⁴ NGI = National Epidemiological and Environmental Assessment of Recreational Water gastrointestinal illness rate

Recommendation:

- *Conduct a 13241 analysis specific to the two NGI risk levels proposed in the USEPA 2012 Criteria and detail the findings in the Staff Report.*
- *Include the 36 illnesses per 1,000 recreators risk level and associated E Coli and Enterococcus objectives in the ISWEBE.*

Comment 11: The salinity threshold in the ISWEBE Provisions should be written to clearly demonstrate that a waterbody will not be subject to changing *E. coli* and Enterococci WQOs.

The Stakeholders support the application of separate indicators for fresh and saline waters and particularly supports the decision by the State Water Board to only apply the Enterococci indicator to saltwater, as it is known to result in erroneous exceedances when applied to freshwater due to natural sources. However, the Stakeholders are concerned that the distinction between saline and freshwater does not cover all waterbodies and may inadvertently expose estuaries and river mouths to varying WQO indicators due to seasonal and tidal changes to salinity. The ISWEBE Provision includes the following language in Table 1 to distinguish between the salinity of the waterbodies:

Freshwater (*E. coli*): *“All waters, except Lake Tahoe, where the salinity is less than 10 ppth 95 percent or more of the time”*

Saltwater (Enterococcus): *“All waters, where the salinity is equal to or greater than 10 ppth 95 percent or more of the time”*

However, no guidance is provided for waterbodies which may fall between the two cutoffs, for instance, an estuary that is seasonally separated from the ocean such that it is saline (>10 ppth salt) only 70 percent of the time in a calendar year.

The Stakeholders recommend that the State Water Board correct the wording of the salinity threshold to be discrete and cover all waterbodies (including those that might fall between the two salinity cutoffs) or provide recommendations of how to monitor waterbodies which do not fall into either freshwater/salinity classification. The Stakeholders recommend making the following change to the freshwater language:

Freshwater (*E. coli*): *“All waters, except Lake Tahoe, where the salinity is **not equal to or greater than 10 ppth 95 percent or more of the time”***

The Stakeholders request that in no situation should a waterbody need to be monitored with varying WQO indicators based on the ambient salt concentrations. Such a requirement would result in unnecessarily complicated monitoring efforts.

Recommendation:

- *Update the language in the ISWEBE regarding salinity such that the threshold represents discrete classifications for the two indicators.*
- *If a text change is not completed, provide guidance on how to handle waterbodies that do not distinctly fall into either the fresh or salt water category.*

Comment 12: Clarify the distinction between the Ocean Plan Bacteria Provisions and AB411 standards.

The Ocean Plan Provisions maintain the California Department of Public Health (CDHP) AB411 standards but do not provide a clear distinction between the new objectives and the AB411 objectives and how and when they each should apply. The Provision language appears to state that all of the objectives (new bacteria and AB411 objectives) would be used for permitting and that only the new WQOs would be used for 303(d) listing decisions; however, the distinction is unclear. For instance, in section III.D.1.a of the Ocean Plan Provisions, the text states:

*“**Any of the bacteria water quality objectives shall be implemented, where applicable, through National Pollutant Discharge Elimination System (NPDES) permits...**”* [emphasis added]

The State Water Board should clarify that the bolded text refers only to the new State Water Board Water-Contact Objectives (II.B.1.a) and that the AB411 objectives should only be used for the purposes of posting beaches, not for 303(d) listing, permitting or TMDL development. The Ocean Plan Provisions need to be clear as to the purpose of each of the objectives as they use different indicators and were established using different methodologies for different purposes.

Recommendation:

- *Update the language in Ocean Plan Provisions so that the WQOs which apply to the NPDES permits are clearly listed as the new State Water Board Water-Contact Objectives by inserting “(II.B.1.a)” after the word “objectives” in section III.D.1.a.*
- *Clarify that the CDPH AB411 objectives should only be utilized for beach posting purposes.*