Ventura Countywide Stormwater Quality Management Program

Letter 33

Participating Agencies

Camarillo

County of Ventura

Fillmore

Moorpark

Ojai

Oxnard

Port Hueneme

San Buenaventura

Santa Paula

Simi Valley

Thousand Oaks

Ventura County Watershed Protection District

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:

Intro text

The Ventura Countywide Stormwater Quality Management Program (Program) is 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 Program commends 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 Report[1], 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*."

The Program's members have extensive experience addressing bacteria issues and are actively managing three different bacteria Total Maximum Daily Loads (TMDLs). Our experience has shown that bacteria is a very expensive pollutant to address and is often the pollutant that drives the most

[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.

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significant costs for stormwater programs when developing watershed management plans for multiple pollutants.

However, the costs for addressing bacteria are associated with capturing and treating fecal indicator bacteria in stormwater runoff. The studies used to develop the USEPA 2012 Criteria that form the basis of the Bacteria Provisions were conducted in waterbodies with different types of sources (primarily wastewater treatment plants). Recent studies conducted in San Diego have indicated that waterbodies primarily influenced by stormwater runoff during wet weather may pose a lower risk to recreators at higher bacteria concentrations. Therefore, it is important that new WQOs are carefully assessed to ensure that they meet the intent of the Provisions to protect the beneficial use. WQOs that are under-protective may expose the public to higher risk of gastrointestinal illnesses, however implementing overprotective WQOs and restricting implementation techniques can also impact the beneficial use through unnecessary beach closings and limited access to a public resource. The Program encourages the SWRCB to carefully consider and balance both potential effects of the Bacteria Provisions.

The Program supports the SWRCB's efforts to update the state bacteria objectives and the variance policy. However, the Program feels there are changes which could provide improved direction 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 proven and accepted science. The Program has three categories of recommendations that are summarized below and detailed further in the rest of the letter.

33.02

I. Make the Bacteria Provisions Adaptable to Improvements in Science

Fecal indicator bacteria are imperfect indicators of potential human health risk from pathogens in receiving waters. As a result, a significant effort is being applied in California and at the federal level to improve the methods available to detect risk levels to protect human health. The Bacteria Provisions should be flexible to incorporate the updated epidemiological and indicator science as it evolves.

33.03

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 Program to effectively address longstanding 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.

33.04

III. Clarify Elements of the Bacteria Provisions to Support Implementation

There are a number of clarifications and applications of the Bacteria Provisions that could be improved to more effectively support implementation. Such issues include clearly analyzing and developing separate implementation provisions for wet weather conditions

and 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.

I. Make the Bacteria Provisions Adaptable to Improvements in Science

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

33.05

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.[3] Criteria values were selected for *Escherichia coli* (*E. coli)* and Enterococci in order to carry forward the same level of public health protection that were believed to be associated with the USEPA's previous criteria recommendations[4] based on fecal coliform. The USEPA carried forward this risk-based approach in its 2012 Criteria development. For example, 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)[5], 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 drivers for selecting appropriate indicator levels, the only mention of risk in either the ISWEBE or 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 underlying 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 risk

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[3] USEPA. 1986. EPA's Ambient Water Quality Criteria for Bacteria – 1986. Washington, DC. EPA440/5-84-002.
[4] USEPA. 1976. Quality Criteria for Water. U.S. Environmental Protection Agency: Washington, DC.
[5] 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.

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 Program requests 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 REC-1 beneficial use. The Program also requests 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.

Requested Action:

- 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.

2. ***Amendments should include the possibility of using alternative indicators as supported and validated by scientific research.***

33.06

The Bacteria Provisions endorse the use of *E. coli* and Enterococci as indicators for fresh and marine waters, respectively. The Program supports 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 developed, states may want to consider using them to develop alternative criteria for adoption in WQS.*"

The Program proposes 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 for assessing risk associated with human illness within a waterbody as long as they are supported by the latest scientific understanding."

In particular, the Program requests that the amendments acknowledge the option of using human markers as an alternative indicator. Numerous studies have established that human sources of bacteria pose the most risk to human health.[6] Hence, the use of human markers provides a more direct method of assessing human health risk than using non-specific fecal bacteria indicators. Additionally, these studies have provided evidence that general fecal indicator bacteria concentrations are not correlated with the presence of human marker, indicating that the risk associated with the fecal indicator bacteria concentrations may be lower even though the objectives are being exceeded.

For example, the Program identified fecal indicator bacteria as a top water quality concern and, with assistance from Southern California Coastal Water Research Project (SCCWRP), conducted an extensive analysis of dry weather bacteria sources throughout the Program.[7] The study included quantification of *E. coli* and up to three host-specific markers (including human, dog, horse and bird). All 73 samples collected were negative for the sensitive human maker HF 183. Dog markers were only detected in 11% of the samples, and bird in 37% of the samples. None of the three markers were detected in 60% of the samples and the detection of human markers proved independent of *E. coli* concentrations. The report concluded that "*the absence of human markers suggested that the risk to human health associated with elevated E. coli levels in storm drains is lower than currently assumed, and current water quality criteria may be overprotective.*" Such studies are valuable in determining fecal indicator bacteria sources and also illustrate that bacteria density can often be decoupled from the human markers which are better indicators of risk to human health.

By focusing on human sources, implementation programs can be targeted on sources of fecal indicator bacteria that are of highest risk and avoid the need to address natural sources of 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.

Requested Action:

- Include a statement in the ISWEBE and Ocean Plan Amendments endorsing the use of alternative indicators of risk as supported by the latest science.

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[6] 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.

[7] County of Ventura Public Works Agency. June 2015. Monitoring Report for Countywide Dry Weather Bacteria Source Identification Study.

- 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 implementation provision for the objectives that allows the use of human markers to demonstrate compliance with objectives if approved by a Regional Water Board.
- Update language in the Staff Report to provide guidance and allow the use of alternative indicators of risk.

33.07

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 Program strongly encourages 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.

Requested Action:

- 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.

33.08

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

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

The Program supports the use of the reference reach/antidegradation approach or natural sources exclusion approach which will provide Regional Water Boards with flexibility to adapt the WQOs for 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 Program strongly disagrees with this limitation and recommends 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 Program cannot use it because a TMDL has not yet been developed for the watershed. However, the Program would like the option to address the remaining bacteria impairments in the County prior to a TMDL being developed. Reference reaches were established and sampled throughout Ventura County as part of a SCCWRP study to assess concentrations and loads from Ventura County. [8]Additionally, as discussed above, studies of human markers in the County indicate that much of the bacteria observed is likely from natural or less risky sources. Under the proposed approach, the Permittees responsible for TMDL regulated waterbodies would have options to avoid addressing natural sources of bacteria that are not available to other Permittees resulting in discrepancies between the implementation programs. Permittees in areas where the reach/antidegradation analysis approach is not allowed would be subject to addressing natural sources and have more significant costs than other dischargers simply because they do not have a TMDL.

It is inappropriate for all Permittees to not have the same tools available to them when implementing their stormwater program. In Southern California, the same reference reach studies, that include sites from Ventura County, have been used in all regions and the allowable exceedance days have been consistently applied to all bacteria TMDLs in Ventura County. 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 at places that could be more quickly and effectively addressed without a TMDL.

While the Program agrees that the TMDL represents a robust analysis process to determine the alternative implementation approaches, it is not the only scenario that

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[8] Assessment of water quality concentrations and loads from natural landscapes. 2007. ED Stein, VK Yoon. Technical Report 500. Southern California Coastal Water Research Project. Costa Mesa, CA.

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.

Requested Action:

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

33.09

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 Program supports 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 Program disagrees with this perspective and notes that reference reach studies in Southern California have shown that GM exceedances are observed in 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 Program feels 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 bacteria[9], 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.

Requested Action:

- 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.

33.10

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 Program appreciates and supports 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 Program maintains 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.

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 Program input and approved by both the USEPA and State Water Board.[10] Importantly, the Santa Ana Regional Water

[9] USEPA 2012 Criteria Sources: Roser et al., 2006; Schoen and Ashbolt, 2010; Soller et al., 2010b; Till and McBride, 2004; WERF, 2011.
[10] State Water Resources Control Board Resolution No. 2014-0005.

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 Amendments[11] contain 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 Program requests 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 Program also requests that the Staff Report be updated to include mention of high flow suspension adoption in the Santa Ana Region Basin Plan.

Additionally, the Program requests 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.

Requested Action:

- 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.

33.11

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

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

[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.

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 Program recommends that REC-2 water quality objectives also be suspended during events when REC-1 objectives are suspended.

Requested Action:

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

III. Address Outstanding issues with Bacteria Objectives

33.12

8. Provide guidance on how existing bacteria TMDLs will be aligned with the new WQOs

The Bacteria Provisions provide little guidance on how the new WQOs will be implemented into existing Bacteria TMDLs. The only language included in the Staff Report states: "*Bacteria TMDLs may need to be updated to be consistent with the Bacteria Provisions as time and workload allow.*"

The Program's members are implementing bacteria TMDLs in Malibu Creek[13], Santa Clara River[14], and the Harbor Beaches of Coastal Ventura[15]. The Program would like clarification from the State Water Board on how the new WQOs will affect existing TMDLs and how the TMDLs should be reassessed for compliance. The State Water Board should provide a set timeframe over which existing bacteria TMDLs should be reevaluated following the effective date of the new Bacteria Provisions. A similar approach was taken in the recent Trash Amendments[16] which allowed one year for the Los Angeles Regional Water Board to reevaluate and assess the impact of the new amendments and change any existing trash TMDLs.

Requested Action:

- Include language in the Ocean Plan and ISWEBE Provisions allowing a set timeframe for existing bacteria TMDLs to come into compliance with the new WQOs, similar to language included in the Trash Amendments.

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[13] Malibu Creek TMDL – Resolution No. 2004-019R. Effective January 24, 2006. And Reconsideration of Certain Technical Matters of the TMDL for Bacteria Indicator Densities in Malibu Creek and Lagoon. Basin Plan amendment – Resolution No. R12-009. Effective July 2, 2014.

[14] Santa Clara River Bacteria TMDL – Resolution No. R10-006. Effective March 21, 2012.

[15] Harbor Beaches of Ventura Program Bacteria TMDL – Resolution No. 2007-017. Effective December 18, 2008.

[16] Final Amendment to Water Quality Control Plan for Ocean Waters of California to Control Trash. https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/trash_implementation/trash_amend.pdf

- Provide guidance in the Staff Report about how existing TMDLs should be reassessed for compliance with the new WQOs.

33.13

9. Reassess all existing waterbodies included on the 303(d) List for REC-1 bacteria exceedances with the new WQOs.

While many TMDLs have been developed for bacteria in Ventura County, several waterbodies are still included on the 2010 303(d) list as impaired due to indicator bacteria, pathogens, fecal coliform, total coliform, Enterococci, *E. coli*, or enteric viruses. Currently, the provisions do not address how these new WQOs will be used to evaluate legacy waterbody 303(d) listings. The Program requests that the provisions require these listings to be reassessed using the new, scientifically defensible WQOs, and any waterbodies that no longer exhibit exceedance be delisted. The reassessment should be conducted as a listing evaluation, and waterbodies that do not meet the listing thresholds should be removed, regardless of whether or not they meet the delisting requirements.

At a minimum, any waterbody undergoing TMDL development should be required to be reassessed for exceedances with the new WQOs prior to developing the TMDL. This requirement should be clearly stated in the Bacteria Provisions and discussed in the Staff Report in order to standardize the regional approach and avoid unnecessary TMDLs for waterbodies that are not in exceedance under the new objectives.

Requested Action:

- Include language in the Bacteria Provisions requiring legacy 303(d) bacteria listings to be reassessed with the new WQOs under the next 303(d) Listing cycle using the criteria for listing waterbodies.
- Include language in the Staff Report requiring that any new bacteria TMDL include an analysis of bacteria exceedances with the new WQOs prior to TMDL development and implementation.

33.14

10. Provide flexibility in the calculation of the geometric mean.

The Program supports 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.

Requested Action:

- 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.

11. Bacteria Provisions should distinguish between wet and dry conditions.

33.15

The Program is 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 occurs separately when the objectives are applied; therefore, methods for appropriately distinguishing weather-specific objectives should be established. All Ventura County bacteria TMDLs include separate allocations for summer dry, winter dry, and wet weather conditions based on the large changes in bacteria loading for each of these weather and seasonal conditions.

Under the California Water Code (CWC Section 13241), the State and Regional Water Boards are required to consider a number of factors when adopting WQOs: 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 Program 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.

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 with consideration given to the underlying

science used to develop the objectives, the short duration of storm events, and the associated potential impacts to beneficial uses. Overall, this evaluation should be consistent with Section 13241 requirement, "reasonable protection" of 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.[17] As currently drafted, the implementation provisions do not meet the requirements for a Program of Implementation as required by Section 13242.

In order to correct this problem, the Program recommends that 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 not result in increased risk to human health and will be more representative of the impact from wet weather events.

Requested Action:

- 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.

33.16

12. The selected risk level should be set at 36 illnesses per 1,000 water contact recreators.

The USEPA 2012 Criteria was based on an extensive review of available scientific literature and public review to arrive at two NGI[18] 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]

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[17] Recognition of wet weather limitations on uses was identified in the 1968 Report of the Committee on Water Quality Criteria, FWPCA and in part notes that "There are, depending on local conditions, waters --- typically below points of discharge and before mixing --- where recreational uses should be discouraged."

[18] NGI = National Epidemiological and Environmental Assessment of Recreational Water gastrointestinal illness rate

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. 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 Program recommends using 36 illnesses per 1,000 recreators as the basis for the Bacteria Provisions WQOs for the ISWEBE and Ocean Plan 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. In addition, applying an overly conservative risk level can, in and of itself, lead to a significant impact on REC-1 beneficial uses. The State and Regional Water Boards should consider the impacts of selecting the lower risk level especially if they may lead to more beach closings (thus removing the beneficial use) while not providing any additional protection to human health.

Requested Action:

- 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 and Ocean Plan Provisions.

33.17

13. 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 Program supports 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 Program is 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 in 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 Program recommends that the State Water Board modify 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 consistently fall into either freshwater/salinity classification. The Program recommends 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 Program requests 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.

Requested Action:

- 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.

33.18

14. 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.

Additionally, the Program requests that the State Water Board consider modifying the AB411 objectives to provide consistency with the new State Water Board Water-Contact Objectives. The new objectives are based on a more comprehensive set of epidemiological studies and is more reflective of the risk to human health during recreation. EPA has clearly stated in the 2012 criteria that fecal and total coliform are no longer recommended to be used.

Requested Action:

- 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 CDPH AB411 objectives should only be utilized for beach posting purposes.
- Modify the CDPH AB411 objectives for consistency with Water Contact Objectives.

15. Provide a discussion of mixing zones in the Ocean Plan Provisions.

33.19

The Program encourages the State Water Board to consider the allowance of mixing zones for stormwater discharges for bacteria. The Ocean Plan currently contains implementation provisions for permitted stormwater discharges that include the following definition:

"RECEIVING WATER, for permitted storm water discharges and nonpoint sources, should be measured at the point of discharge(s), in the surf zone immediately where runoff from an outfall meets the ocean water (a.k.a., at point zero)."

The Program requests that the State Water Board consider modifications of this definition or inclusion of a mixing zone provision for permitted storm water discharges. As these Provisions were developed to protect a beneficial use, the definition of receiving water should be adjusted to reflect areas where the beneficial use occurs which is not at the point of discharge but at some minimum defined distance away from a discharge point. Permittees should be allowed to conduct studies to determine applicable mixing zones for bacteria and not be precluded from establishing them by the implementation

provisions of the Ocean Plan. As stated in the Staff Report, the Ocean Plan already has a statewide policy regarding mixing zones for toxic pollutants which is implemented through wastewater NPDES Permits, but has not established something similar for stormwater. It is logical to extend a similar policy to the Bacteria Provisions in order to establish a statewide standard for developing mixing zones for stormwater discharges. In addition, any changes to the definition of receiving water or application of mixing zones should apply to both the Bacteria Provisions and AB411 Provisions in order to standardize and streamline monitoring programs.

Requested Action:

- Add a provision for establishing mixing zones for permitted stormwater discharges in the Ocean Plan Provisions and Staff Report.
- Change the definition of receiving waters (where sampling will occur) for the Bacteria Provisions and AB411 as areas where the beneficial use actually takes place (i.e., not at the point zero of an outfall).

closing text

Finally, the Program recognizes the large amount of work that went into developing the Bacteria Provisions and appreciates the opportunity to comment. The Program supports the efforts already made by the State Water Board and continues 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 Arne Anselm at (805) 654-3942.

Sincerely,

Arne Anselm, Chair
On Behalf of the Countywide Stormwater Management Committee

cc: Nick Martorano, SWRCB
Stephanie Rose, SWRCB
Michael Gjerde, SWRCB
Ventura County Stormwater Quality Management Committee