Appendix D

Response to Comments

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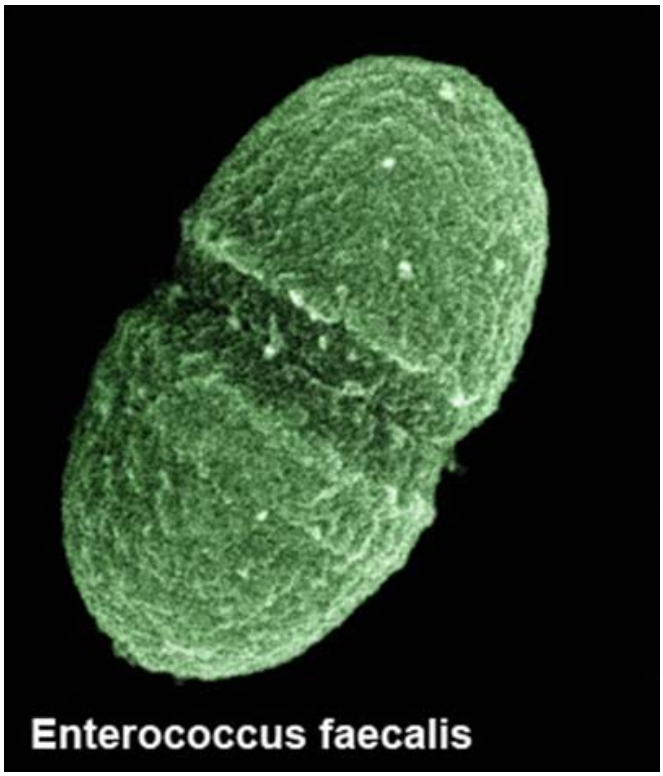
Proposed Amendment to the Water Quality Control Plan (Basin Plan)

to Establish Bacteria Objectives for Waters Designated for Contact Recreation in Marine and Estuarine Waters of the San Francisco Bay Region

RESPONSES TO COMMENTS



April 14, 2010

San Francisco Bay Regional Water Quality Control Board

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This document provides Water Board staff's responses to written comments on the proposed Basin Plan amendment for enterococcus objectives. We include responses to the six comment letters we received on the February 4, 2010, version of the Basin Plan amendment and supporting Staff Report.

Letters were received from the following:

1. Bay Area Clean Water Agencies (BACWA)
2. San Francisco Baykeeper
3. Novato Sanitary District
4. Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPP)
5. Morrison and Foerster, on behalf of SCVURPP
6. City of Sunnyvale

We begin by providing Staff's perspective on themes common to several comment letters.

Common Themes in Comments

There are two common themes running through the comment letters from discharger groups. The first theme is the frustration that this project does not overhaul the Basin Plan's bacterial indicator objectives and associated effluent limits and address all beneficial uses, including shellfish harvesting. Several commenters requested that we address existing objectives and effluent limitations for other bacterial indicators, including total and fecal coliform currently in the Basin Plan. The purpose of this amendment is to incorporate enterococcus objectives into the Basin Plan to address their implementation for wastewater discharges. The reason we decided to take on this project was that we could accomplish it efficiently because we could rely on technical work already developed. Another reason we did not take on a more comprehensive overhaul of bacteria objectives is that there are efforts currently in progress at the State and federal level addressing freshwater bacteria objectives (California), shellfish harvesting objectives and their applicability (California), and bacteria objectives in general (federal). It is not an efficient use of staff resources to anticipate or duplicate these other efforts. Moreover, because we will be revisiting bacteria objectives as these other projects bear fruit, we will have other opportunities in the near future to consider changes to the way bacteria are regulated in this region.

The second theme is the concern over the selection of the single sample maximum enterococcus objective of 104 MPN/100 ml, corresponding to the

highest public use, e.g., heavily used beaches, rather than the multiple tiered use criteria (different maximum objectives for moderately, lightly and infrequently used areas) developed by the U.S. Environmental Protection Agency (U.S. EPA). Many commenters stated a preference for inclusion of all tiered use single sample maxima (SSMs[1]). They expressed concern that our approach would lead to unintended consequences of listing water bodies as impaired that are not heavily used for water contact recreation, such that onerous TMDLs would need to be developed and unnecessary costs of compliance imposed on dischargers. Other commenters suggested that this single objective would be used to "inform permit requirements for municipal stormwater discharges" and that this selection would result in significant and unnecessary costs due to the need for higher levels of bacterial control measures being imposed beyond that necessary to protect the level of use.

We continue to recommend including only the 104 MPN/100 ml SSM for several reasons. This is the highest level of protection intended for areas of high public use, and including only this tier along with the geometric mean objective is consistent with the way the U.S. EPA criteria were incorporated into both California's Ocean Plan as well as Title 17, Section 7952 et seq of the California Code of Regulations (CCR). The California Ocean Plan applies to coastal waters outside of San Francisco Bay waters. The CCR established the minimum standards that the Department of Public Health promulgated to use for public health notification and closures for coastal and bay public water-contact sports areas, including public beaches. We have no data available to assign different use categories to different portions of San Francisco Bay.

The concern about unintended impaired water body listings resulting from our choice of the SSM enterococcus objective is overstated, and concerns about higher levels of control measures based on the choice of single sample maximum objectives is unfounded. We do not think it likely that listings for water bodies with little or no public use would be based solely on exceedances of the SSM. We state clearly in the Staff Report (pages 17, 25, 27) that we agree with the U.S. EPA's conclusion that the geometric mean objective is more suitable for ensuring that appropriate actions are taken to protect and improve water quality and that we recognize that the single sample maximum is best suited for making beach closure decisions.

[1] A Single Sample Maximum in the context of enterococcus objectives is a value that indicates with a certain degree of confidence that a water body may exceed the geometric mean. A geometric mean is a measure of the central tendency or typical value of a set of numbers, a type of average. In practice it is the average of the logarithmic values of a data set, converted back to a base 10 number.

U.S. EPA stated in its 2004 rulemaking that outside of beach notification decisions, States could use the SSM to make water quality assessments when there is little data for a water body. However, the intended use of the SSMs is not to make judgments about water quality from a single sample or even two or three samples in isolation. In fact, The Basin Plan explicitly states in a footnote to Table 3-1 that the bacteria objectives are to be applied in a context in which a minimum of five consecutive samples are taken over a 30 day period. This requirement is designed to ensure that sample collection is motivated by the desire to characterize typical ambient conditions and not to emphasize infrequently occurring extreme events.

Moreover, California's Listing Policy requires reliable water quality monitoring data of sufficient quantity and quality that is spatially and temporally representative. In order to list a water body on the 303(d) list, data would be evaluated according to California's Listing Policy. For conventional pollutants, such as bacteria, the Policy requires a minimum of five samples and a minimum number of five exceedances, for a sample size less than or equal to 30 samples. Thus, a significant quantity of data must be collected to assess water quality for bacteria, and spurious listings based on infrequent exceedances of the SSM are unlikely.

The Listing Policy also provides for flexibility in the form of a site-specific exceedance frequency corresponding to the number of water quality standard exceedances in a relatively unimpacted watershed or beach (i.e., a reference water segment). We want to emphasize that the interests of our Board are not served by developing and implementing TMDLs for ill-founded impairment determinations for areas where there is little water quality benefit or by requiring significant expenditures for bacterial control measures where little contact recreation use occurs.

The concern that the SSM would somehow inform permit conditions for municipal stormwater discharges resulting in significant and unnecessary costs is also overstated. First, as we point out in our discussion above, the SSM is not expected to result in unnecessary impaired water body listings. Furthermore, single or infrequent observations of high enterococcus concentrations (exceeding the SSM) may be associated with illegal discharges that should be controlled. Observations of recurring high enterococcus concentrations (exceeding the SSM) will also likely result in exceedances of the geometric mean enterococcus objective, and be reflected in exceedances of other Basin Plan bacteria objectives, so the SSM would not be uniquely driving a regulatory response.

Comment Letter 1: Bay Area Clean Water Agencies (BACWA)

Comment 1.1: "Table 3-1 should include all of EPA's applicable water quality objectives to protect water-contact recreational use…..which include fresh water criteria and single sample maximums to protect varying levels of use."

Response: The discussion above under "Common Themes," explains why we did not include all single sample maxima to protect varying levels of water contact recreational use. The scope of this project does not include adoption of freshwater criteria because the State Water Board is working on adopting freshwater objectives on a statewide basis.

Comment 1.2: "The fecal and total coliform objectives should be removed from Table 3-1. These objectives are not necessary because enterococcus shows the strongest relationship to gastroenteritis. If fecal and total objectives are not removed, then an explanation should be provided in the Basin Plan that enterococcus and total coliform objectives are individually sufficient to protect water contact recreation uses so effluent limitations are not required for both indicators."

Response: Removing fecal and total coliform objectives from Table 3-1, *Water Quality Objectives for Bacteria*, is beyond the scope of the project. See also discussion above under "Common Themes." In addition, all three bacterial indicators were sustained in the CCR. It is also not necessary to add the suggested explanation clarifying that permits need not contain *both* total coliform and enterococcus effluent limitations because the modifications to Chapter 4 of the Basin Plan clearly only require one indicator be established in effluent limitations to protect water contact recreation uses.

Comment 1.3: "Footnote 'b' of Table 3-1 should be expanded to state that the National Shellfish Sanitation Program guidelines are intended to protect areas where recreational or commercial shellfishing occurs."

Response: The project objectives of this Basin Plan amendment do not include addressing water quality objectives for the shellfish harvesting beneficial use. We do not disagree with the commenter's statement that the guidelines are intended to protect areas where recreational or commercial shellfishing occurs.

Comment 1.4: "Add a footnote explaining that the tiered single sample maximum value for enterococcus or E. *coli* is best used for making beach notification and closure decisions. Incorporating only the single sample maximum for designated beaches introduces the possibility that this objective could be applied to areas of the Bay infrequently used and potentially results in impaired water body listings and the misdirection of management resources."

Response: The requested footnote is not necessary. We agree that the SSM value for enterococcus is best used for making beach notification or closure decisions. We addressed the concern about listings due to exceedance of just the enterococcus single sample maximum as well as how the Water Board would approach such listings should they occur, in the section on "Common Themes". See also response to comment 4.3c.

Comment 1.5: "Delete existing total coliform objectives from Table 4-2 as well as the entire proposed Table 4-2A. Calculation of effluent limits for each permit would then be based on new and existing objectives in Table 3-1 and the methodologies for calculating effluent limits specified in the State Implementation Plan."

Response: We will not make the requested change because dealing with total coliform limits is outside the scope of the current project. Further, we do not support removing specific effluent limits from Chapter 4 of the Basin Plan and leaving the process of setting effluent limits for bacteria open to discussion. Including the implementation language in Chapter 4 makes clear that the State Implementation Plan methodologies apply.

Comment 1.6: "Remove Table 4-2A and replace it with narrative text of how objectives in Table 3-1 will be used to generate permit effluent limitations."

Response: See response to Comment 1.5.

Comment 1.7: "The narrative text (see Comment 1.6) should clarify that either enterococcus or E. coli effluent limitations will be included in NPDES permits to protect REC-1 so that total coliform effluent limits are not necessary, except to protect another designated use for which no enterococcus objective exists."

Response: See response to Comment 1.2.

Comment 1.8: "The narrative text should also clarify the footnotes to Table 4-2 that one indicator organism may be substituted with another when it can be demonstrated that such a substitution will not result in unacceptable adverse impacts on beneficial uses and that the Water Board may consider establishing less stringent requirements for any discharges during wet weather."

Response: There is already a footnote in Table 4-2A stating that fecal coliform may be substituted for total coliform if such a demonstration is made. Making any indicator organism interchangeable with any other indicator organism is beyond the scope of the project. There is already a footnote to Table 4-2A signaling the Water Board's ability to consider less stringent requirements for any discharges during wet weather.

Comment 1.9: The commenter requested specific language changes to the narrative text at the beginning of Section 4.5.5.1.

Response: We will not make the requested changes because they are unnecessary and do not enhance clarity or accuracy of staff's proposed language.

Comment 1.10: The commenter requested numerous, specific changes to footnote 'b' of Table 4-2A (see pages 4-5 of BACWA comment letter for details).

Response: We agree with some of the proposed language changes, specifically we will make it clear in the amendment that the "Water Board *may* (instead of will) implement the total coliform effluent limit in place of the enterococcus effluent limit under certain

circumstances like water reclamation." We will also make a clarification regarding the application of total coliform effluent limitation for circumstances involving water reclamation discharges. Note also that paragraph breaks have been added to help guide the reader to which parts of the footnote apply to what types of discharge circumstances. In the proposed language, underlined text is that added to the original public notice version, and strikethrough indicates text stricken from the public notice version.

> For such discharges, on a case-by-case basis, the Water Board ~~will~~ may implement the total coliform effluent limitation in place of the enterococcus effluent limitation. This may occur, for example, when wastewater treatment plants are required by the Water Board or another agency to monitor routinely for total coliform (e.g., for recycled/reclaimed water).~~must also meet total coliform limits to achieve water quality objectives for recycled water.~~

Comment 1.11: The commenter requests that a sentence be added to the end of footnote 'a' of Table 4-2A to allow an alternative test result based on other analytical methods approved in 40CFR.

Response: The following sentence will be added to the end of footnote 'a' of Table 4-2A. This will help clarify the acceptable analytical methods that can be employed for enterococcus measurements.

> Equivalent test results based on other analytical methods applicable to enterococcus approved in 40 CFR 136.3(a) are acceptable.

Comment Letter 2: San Francisco Baykeeper

Comment 2.1: "We hope that the ambient monitoring program will include collection efforts at the Berkeley Aquatic Center and conduct monitoring year round. We hope that the ambient monitoring program also includes data collection from open water marine and estuarine segments in the region in an effort to fill that current data gap. Monitoring data should be used to notify the public when enterococcus numbers reach unsafe levels, similar to the Beach Watch surveillance program."

Response: The addition of enterococcus objectives does not by itself necessitate new or different monitoring. The current county-based beach monitoring approach is reasonable, and changes in locations that are sampled are best addressed by the entities that conduct this monitoring. That said, the commenter is welcome to submit additional information about concerns it has regarding the Berkeley Aquatic Center to staff for future consideration for monitoring under the SWAMP program.

Comment 2.2: "If a dilution credit is to be applied, dischargers must be required to demonstrate that enterococcus levels do not exceed the proposed effluent limitations at the surface of the water directly adjacent to the discharge point."

Response: The commenter raises a valid concern about the need to demonstrate protection of beneficial uses when allowing dilution. We assume that the commenter is advocating a demonstration regarding attainment of water quality objectives (to protect beneficial uses like REC-1) adjacent to a discharge point. The amendment proposes that the Water Board has the discretion to apply dilution to water quality-based bacteria effluent limitations in a manner consistent with the SIP. The SIP requires that "pollutant **criteria and objectives** are to be met **throughout a water body except within any mixing zone** granted by a Regional Water Board. The allowance of mixing zones is discretionary and shall be determined on a discharge-by-discharge basis." Application of the SIP to allow for dilution requires a demonstration that beneficial uses are protected, and, thus, the commenter's concern will be addressed.

Comment 2.3: (in the case of intermittent discharges) "Why is the discharger required to meet the Total Coliform single sample standard of 240 MPN/100 ml instead of the more conservative enterococcus single sample limit of 104 MPN/100 ml?"

Response: The Basin Plan amendment does not propose a daily maximum enterococcus effluent limitation based on the single sample maximum objective. According to the USEPA, the geometric mean is more relevant for assuring that appropriate actions are taken to protect and improve water quality than the SSM because it is a more reliable measure of water quality, being less subject to random variation, and more directly linked to the underlying studies upon which the criteria are based. Therefore, the single sample total coliform effluent limitation must be employed when data scarcity preclude computation of a geometric mean enteroccocus concentration for comparison to the effluent limit.

Comment 2.4: The commenter questions the application of new effluent limits in instances where they are less stringent than a permit's existing limits. The commenter requests justification for proposing effluent limitations higher than the lowest limit currently in place. The commenter states that changing permits with limits more stringent than those proposed in the amendment would be contrary to the Clean Water Act's (CWA's) anti-backsliding provision.

Response: We are not aware of any relaxation of objectives. The example cited in the comment letter (Napa) is a freshwater discharge outside the scope of this amendment. Furthermore, backsliding must be addressed as part of permit reissuance.

Comment 2.5: "Anti-degradation analysis was not included in the proposed amendment on the basis that proposed enterococcus objectives are as stringent or more stringent than existing water quality objectives. However, this does not appear to be the case for all NPDES permits considered under this amendment."

Response: We are not required to perform an *anti-degradation* analysis because we did not relax a water quality objective. *Anti-backsliding* provisions govern how and under what circumstances effluent limits may be relaxed, and evaluation of anti-backsliding is accomplished as part of NPDES permitting, not basin planning.

Comment Letter 3: Novato Sanitary District

Comment 3.1: "The District is very concerned that it will not be able to meet the proposed fecal coliform effluent limits in the current permit."

Response: There are no proposed fecal coliform effluent limits in the amendment and addressing concerns about fecal coliform effluent limits in permits is outside the scope of this project.

Comment 3.2: "While the basin plan amendment purports to not address shellfish beneficial uses, the District is very concerned that it in fact does exactly address shellfish beneficial uses, because in recent years there has been an alternative approach to addressing shellfish beneficial uses that does not appear to be available since the release of this public draft basin plan amendment."

Response: This Basin Plan amendment does not change the way the Water Board addresses the shellfish beneficial use in permits. We have clarified in footnote 'b' of Table 4-2A, which effluent limitations must be included in NPDES permits when the shellfish beneficial use exists, but this is no more than a clarification of existing Water Board current practice. It is not a change.

Comment 3.3: "The District requests that this bacteria basin plan amendment either (1) be delayed until after the State Water Board completes its shellfish studies, or (2) address water quality objectives to protect shellfish beneficial uses in this basin plan amendment, or (3) delay inclusion of effluent limits related to shellfish uses until after the State Water Board concludes its shellfish studies."

Response: There is no reason to delay the amendment or any permitting actions subsequent to its adoption as requested because this proposed amendment does not, contrary to the commenter's assertion, address shellfish beneficial uses. Indeed, the reason we did not address shellfish beneficial uses is because the State Water Board is engaged in an effort to address this very issue.

Comment Letter 4: Santa Clara Valley Urban Runoff Pollution Prevention Program

Comment 4.1: "Our technical comments are largely focused on the amendments to WQOs proposed to be included in Chapter 3 of the Basin Plan, but we also have serious concerns about: 1) the application of the WQOs in the form currently proposed to urban runoff in the Bay Area, and 2) the approach staff has taken in the proposed Implementation Plan which effectively puts off until a later day any meaningful analysis or consideration of economic effects on municipal stormwater dischargers of adopting the WQOs as currently proposed."

Response: We will respond to the commenter's specific concerns concerning the application of the WQOs in response to other comments below. The concern about "putting off meaningful analysis or consideration of economic effects" is more fully

developed in the comments by the SCVURPPP attorney, and we respond in detail to this issue in response to those comments under Comment Letter 5 below.

Comment 4.2: "Adopt enterococcus single sample maxima based on levels of use. By foregoing a multi-criteria approach and instead specifying a single WQO, the proposed Basin Plan Amendment would, in effect, raise the level of protection for all of San Francisco Bay to the standard EPA only intended to be applied to Designated Beach Areas. This approach goes beyond what USEPA believes is protective of public health, conflicts with actual uses and conditions in San Francisco Bay, and could impose significant and unnecessary costs for municipal stormwater dischargers."

Response: All of these issues are addressed in the "Common Themes" section at the beginning of this response document. See also responses to Comment Letter 5 below.

Comment 4.3a: "Explicitly state that the enterococcus geometric mean is the water quality objective and reserve the application of single sample maxima to designated swimming beaches."

Response: The single sample maximum is also a recognized water quality objective and is identified as such in California's Ocean Plan and the CCR. How the objective is applied is a question of implementation rather than selection as an objective.

Comment 4.3b: "According to the USEPA, the geometric mean is more relevant than the SSM because it is a more reliable measure of water quality, being less subject to random variation, and more directly linked to the underlying studies upon which the 1986 and 2004 enterococcus criteria are based."

Response: The commenter has identified the basis for our relying on the geometric mean enterococcus objective for proposed provisions implementing the enterococcus objectives in wastewater permits.

Comment 4.3c: "Explicitly include language in the proposed WQO or implementation chapter that states: "the enterococcus geometric mean is the preferred WQO for assessing water quality conditions in the San Francisco Bay Region and appropriate SSMs should only be used when making beach notification and closure decisions or in cases where less (sic) than 5 samples were taken over a 30-day period at a particular site."

Response: We agree that the geometric mean may be more appropriate for assessing water quality conditions and determining what measures are necessary to improve water quality with respect to bacteria. Determination of standards for beach notification and closure decisions are the responsibility of the Department of Public Health and they are addressed in the CCR. However, we will not make the suggested change because we wish to remain consistent with how the SSMs were stated and implemented in the Ocean Plan. Adding this language would cause possible confusion regarding how to apply the SSMs because the commenter's suggested constraints do not accompany the SSMs as they appear in the CCR or Ocean Plan.

Therefore, adding the statement suggested in the comment could not have the commenter's desired effect of precluding consideration of single sample maxima for listing determinations because single sample maxima exist in other applicable plans and policies.

Comment 4.4: "Remove the total and fecal coliform water quality objectives."

Response: Sustaining these objectives in the Basin Plan is consistent with the approach taken in the Ocean Plan and the CCR, which have objectives for fecal and total coliform consistent with those in our current Basin Plan. Please also see response in the "Common Themes" section.

Comment 4.5: "Expand the implementation plan section of the Basin Plan amendment to include consideration of natural sources."

Response: We support application of natural source consideration and, indeed, nothing in this proposed amendment precludes such application. As stated in the "Common Themes" section, California's Listing Policy explicitly recognizes the 'reference location' approach. We are interested in working with the commenter and other interested parties to establish appropriate reference conditions for various types of water bodies throughout the region. It is not necessary to add language to the Basin Plan in order to embark on such an effort.

Comment Letter 5: Morrison and Foerster, Legal Comments Submitted on Behalf of the Santa Clara Valley Urban Runoff Pollution Prevention Program

Comment 5.1: "We request that staff provide the public and members of the Water Board with (1) a revised CEQA analysis that considers a more reasonable range of alternatives to the amendment as currently proposed, including one based on the recommendations set forth in the Program's (Santa Clara Valley Urban Runoff Pollution Prevention Program, SCVURPPP) technical comments, and (2) addresses the likely economic burdens on municipal stormwater dischargers and the technical feasibility of the amendment as proposed, compared with that of an alternative form of the amendment based on the recommendations set forth in SCVURPPP's technical comments."

Response: We disagree that we need to provide a revised CEQA analysis and feel we have provided a reasonable range of alternatives. We address specific concerns of the commenter about our CEQA analysis as we respond to their later comments. We addressed the specific approach suggested by SCVURPPP in response to comments 4.3a-c as well as the "Common Themes" section at the beginning of this document. We address specific concerns about the economic analysis as we respond to detailed later comments on this subject from this same commenter.

Comment 5.2: "Staff has failed to conduct an adequate analysis of alternatives to the proposed amendment under CEQA. Staff includes a cursory alternatives analysis,

however it is not sufficient to meet the requirements of CEQA. The alternatives considered do not represent a reasonable range of feasible alternatives because the Staff Report neglects to consider feasible alternatives that could achieve the objectives of the project, while substantially reducing the economic consequences of compliance for public agencies subject to stormwater standards. The analysis is relatively superficial, and therefore misleading, depriving the Regional Board members and the public of a meaningful comparison of different policy options upon which to make an informed decision of which manifestation of a WQO should be adopted."

Response: The commenter asserts that the alternatives presented in the CEQA analysis do not represent a reasonable range. However, the only support for this assertion is that the analysis did not consider an alternative favored by SCVURPPP that is claimed to reduce economic consequences of compliance for public agencies subject to stormwater standards.

CEQA does not require that we analyze *every conceivable* alternative, just a reasonable range. Identification of alternatives that *have not* been analyzed is not sufficient evidence that the range of alternatives that *has been* analyzed is inadequate. Nevertheless, we will now analyze the alternative presented by the commenter, and this will serve as a supplement to the analysis of alternatives presented in the Staff Report and provide the public and the Water Board a comparison with the chosen alternative as the commenter requests.

> Alternative: a reasonable, middle-ground alternative would provide for a WQO consisting of only the geometric mean enterococcus objective of 35 MPN/ 100 ml, and would apply the 104 MPN/100 ml SSM only to make decisions regarding heavily-used designated beach notification and closure decisions.

The commenter suggests that this would provide for water quality protection but avoid the costly measures necessary to comply with a blanket SSM in areas with less-intensive water contact recreation. It should be pointed out that decisions and standard setting for beach notification and closure decisions are the responsibility of the California Department of Public Health and local health departments, not the Water Board.

The argument that this alternative can avoid the costly measures necessary to comply with the staff's preferred alternative is flawed. The commenter alleges, but has failed to offer any evidence, that application of the single SSM of 104 MPN/100 ml results in costly measures of compliance. In order for this to be true, exceedances of the enterococcus SSM must uniquely cause water quality compliance challenges that must be absent if the SSM were absent or relaxed. In other words, the enterococcus SSM must be shown to be the main trigger for water quality exceedances that would then result in costly control measures. But, this is not the case. In fact, section 3.2 of the Staff Report presents water quality monitoring data for bacteria indicators in terms of frequency of exceedance of the proposed enterococcus objectives along with frequency of exceedance

of other existing bacteria indicators. These data show that in almost all cases where there are exceedances of the enterococcus SSM, there are likewise exceedances of the SSMs for other indicators and exceedances of the geometric mean as well. This pattern becomes stronger as exceedance frequency increases, which is important because impairment determinations would require an exceedance frequency high enough to meet the requirements of the Listing Policy. This relationship between exceedance of bacterial indicators is not surprising because the indicators are simply different ways of detecting the presence of pathogenic bacteria coming from common animal and human sources.

The point is that the commenter is incorrect in thinking that application of the enterococcus SSM, by itself, would likely lead to water quality compliance challenges that would force dischargers to employ costly remedies. Instead, it is much more likely that the case for impairment would be indicated by elevated concentrations of multiple bacteria indicators and exceedances of the geometric mean.

In addition, we will also evaluate how well this alternative meets the stated project objective that the new water quality objectives be consistent with California law and criteria promulgated by the U.S. EPA. The commenter's suggested alternative is not consistent with California law because the SSMs are not restricted to such a purpose in California's Ocean Plan, or the CCR, or by U.S. EPA. Although the U.S. EPA suggests beach closure determination is the most appropriate use of the SSMs, it does not constrain their applicability only to such circumstances.

Therefore, we have shown that there are no likely economic benefits of this candidate alternative, and the commenter has not provided evidence that this candidate alternative lessens either economic or environmental impacts relative to the Staff Report's preferred alternative. This alternative does not result in less environmental impacts than the preferred alternative. Staff has also shown that the candidate alternative offered by the commenter does not meet a fundamental project objective that *is satisfied* by staff's proposed alternative, Staff, therefore, do not support the commenter's candidate alternative.

Comment 5.3: "Staff could have also analyzed the potential effects of any number of alternatives that may be effective and feasible, such as applying the proposed WQOs on a seasonal basis, when water contact recreation is most likely, establishing subcategories of uses, or implementing the WQOs only through effluent limitations from wastewater dischargers."

Response: The commenter has offered an additional list of alternatives that we will now evaluate with respect to the project objectives. This will also serve as a supplement to the alternatives analysis presented in the Staff Report. None of the alternatives presented were demonstrated to result in less environmental impacts than the preferred alternative.

> Alternative: Apply the proposed WQOs on a seasonal basis, when water contact is most likely.

Because this proposed alternative conflicts with how enterococcus water quality objectives have been promulgated by U.S. EPA, the CCR, and the Ocean Plan, it does not meet project objective 'a'. The commenter suggests that the seasonality of water contact recreation is sufficient grounds for not protecting this use year-round. This is clearly not consistent with the mandate of the Water Board to protect the use year-round and does not meet the project objective that the new water quality objectives fully protect the water contact recreational use in marine and estuarine waters in the region. Because the candidate alternative fails to meet two fundamental project objectives, and the commenter has not provided evidence of any way in which it lessens environmental or economic impacts relative to the preferred alternative in the Staff Report, staff do not support the commenter's candidate alternative.

> Alternative: Establish subcategories of uses.

The commenter has not provided sufficient detail for this candidate alternative to permit an evaluation. We will assume that we are to consider sub-categories of the water contact beneficial use and establish different levels of protection for such categories through choice of the water quality objective. It is difficult to distinguish this approach from the tiered SSM approach which was evaluated and rejected in the Staff Report.

> Alternative: Implement the WQO only through effluent limitations from wastewater dischargers.

This alternative seems to suggest that the Water Board can choose to restrict implementation of a water quality objective to wastewater discharge effluent limitations. The Water Board cannot restrict all future implementation measures to just wastewater effluent limitations. For example, when a water body is shown to be impaired by bacteria, the required regulatory remedies (e.g., TMDL and subsequent permitting actions) must consider all sources of bacteria to the water body and involve a plan to reduce all contributing sources, including non-wastewater sources, such that the water quality standards are met. Neither the Clean Water Act nor the CCR suggest that measures implementing water quality standards or objectives can legally be restricted to only wastewater sources. This candidate alternative conflicts with federal and California law and is, therefore, rejected.

Comment 5.4: "The alternatives discussion fails to provide for meaningful analysis of different options. The Staff Report cursorily dismisses it on the basis that determining level of use would be too difficult. Neither the Water Code, nor Water Board regulations, nor CEQA exempts the Board from conducting the required analysis merely because it is complicated. We also question whether, as a factual matter, the Staff Report overstates the intensity of analysis that would be involved in tailoring SSM objectives to particular areas depending on anticipated recreational

uses. Because staff does not provide any detail to back up this conclusion, it is difficult to evaluate whether it actually has merit.

Staff's analysis ignores the likelihood that the preferred alternative would result in some areas (i.e., those other than heavily used designated beach areas) being incorrectly presumed to have more intensive water contact recreation than they truly have – a presumption that carries with it potentially significant and unnecessary costs to public agencies."

Response: The commenter misstates the basis of rejecting this (multiple SSM approach) alternative by claiming that we did so because "it would be too difficult." We agree that establishing the intensity of water contact recreation everywhere in the Region where there are marine and estuarine waters (over 2800 square kilometers of open water and thousands of kilometers of shoreline) would be a formidable undertaking, even more so since these intensity determinations would need to be periodically updated. Undertaking this effort for the San Francisco Bay alone would also be a significant effort. Such an effort would involve extensive surveys and site-visits to count persons engaging in water contact recreation on shoreline areas and open water throughout the year because there is year-round water contact recreation.

The Staff Report legitimately points out that, because of the enormity of this task, there is a possibility that some areas would be designated as having less intensive use than they really have such that a less protective SSM would erroneously be applied. The effort to establish and maintain these use patterns along with the substantial risk of failing to protect water contact recreation uses can be weighed against the presumed economic and environmental impacts of *not doing* the necessary surveys alleged by the commenter. What one finds in doing this is that there is a vanishingly small likelihood of negative environmental or economic impacts resulting from establishing the most protective SSM as we have proposed.

As we pointed out in response to comment 5.2, in order for the proposed choice for the enterococcus SSM to be responsible for causing costs to public agencies, as the commenter alleges, water quality impairments due to bacteria would have to be uniquely determined by the need to comply with the proposed enterococcus SSM. We have presented information that suggests this is unlikely to be the case, so the decision to use the single, most protective value of the enterococcus SSM (as proposed by staff) has the virtue of ensuring protection of the water contact recreation beneficial uses yet entails very little risk of needless and burdensome costs as alleged by the commenter.

We also note here that our method of implementing the most protective enterococcus SSM is consistent with the approach used in California's Ocean Plan, as well as the CCR. The commenter has not presented evidence that the alleged economic harm would result from the approach proposed in the amendment, and staff have presented information that suggests that no such economic harm would occur uniquely due to the choice of the enterococcus SSM (see response to comment 5.2).

Comment 5.5: "Staff attempts to impermissibly defer analysis of the environmental impacts of urban runoff controls. The analysis fails to consider any environmental impacts that may result from municipal stormwater dischargers' need to implement new Best Management Practices. Staff simply states that it is not possible to specify in detail which measures will be necessary to control urban runoff sources and that implementation of these control measures may be subject to additional environmental review (page 22 of Staff Report). It is not enough to argue, as the Board did, that "tier two" review was the responsibility of local agencies who would determine specific methods of compliance with the new performance standard. The Staff Report does not discuss *any* reasonably foreseeable (including interim and cumulative) environmental effects of implementing any stormwater control measures."

Response: Staff evaluated many possible impacts that could result from implementation of reasonably foreseeable control measures implemented to control discharges from municipal stormwater. For all of the applicable topic areas in the CEQA Environmental Checklist, Exhibit C of the Staff Report, staff evaluated impacts that *might* be associated with installation, construction, and maintenance of stormwater BMPs, such as diversions and wet weather facilities to capture and treat stormwater. We concluded that there would be less than significant impacts because either the scale of the projects would be small or there are, for the foreseeable impacts, a wide array of regulatory and permitting processes that would prevent significant impacts.

For example, in the category of 'Geology and Soils', we assumed that unstable earth conditions can be avoided because grading, construction, and building permit processes would include consideration of all of these geological impacts. Construction and building permits would ensure that geological impacts are avoided by requiring that infiltration-type BMPs be located away from areas with loose or compressible soils, and away from slopes that could become destabilized by an increase in groundwater flow. Structural BMPs would be designed and sited in areas where the risk of new soil disruption is minimal. Soil disruptions, displacements, and compaction during construction activities would be avoided or minimized by the requirements of grading and construction permits. As stated in the environmental checklist, most reasonable foreseeable control measures would likely be small additions to existing facilities currently needed to meet water quality standards.

The analysis prepared by staff is in accordance with CEQA, section 15145, which addresses the issue of sufficiency of the discussion of impacts. Staff concludes that the impacts of reasonably foreseeable means of compliance that have not yet been planned, designed, or described and are too speculative for detailed environmental evaluation.

In accordance with CEQA, section 15151, the environmental checklist was prepared with a sufficient degree of analysis to provide the Board with information that enables it to make a decision, which reasonably takes into account the environmental consequences of the proposed regulation.

Comment 5.6: "Staff has failed to conduct adequate analysis of the potential economic burden and technical feasibility of compliance by municipal stormwater dischargers with the new WQO as currently proposed. The Staff Report gives short shrift to these requirements and potential economic burdens that could be imposed on Program members and other municipalities if they are required to comply with the new WQOs in the form currently proposed."

Response: The Staff Report identifies reasonably foreseeable means of compliance for controlling bacteria in municipal stormwater. We maintain that the identified methods are feasible because they actually have been evaluated and put into practice in many locations in Southern California and elsewhere throughout the country in response to water quality impairments due to bacteria. The Staff Report presents cost information taken mainly from similar environmental analysis conducted as part of a TMDL project in Southern California to remedy impairment by bacteria in a coastal water body. We have also, in response to comment 5.2, demonstrated that the commenter's assumption (that economic burdens imposed on municipalities would stem uniquely from the need to comply with the proposed enterococcus objectives) is incorrect because of the relationship between bacterial indicators, and that they are merely similar approaches to indicate the presence of pathogens in water. We offer more response on the issue of economic analysis in response to comment 5.7.

Comment 5.7: "The Staff Report does not provide any real analysis of economic reasonableness or technical feasibility. The Staff Report could and should more meaningfully extrapolate out the reasonably foreseeable large-scale economic impacts of implementing various strategies (from among identified control measures) in different combinations."

Response: The commenter argues that staff's economics analysis is deficient because it does not extrapolate out reasonably foreseeable large-scale economic impacts of implementing various strategies to control bacteria in municipal stormwater. The Staff Report presents unit cost information in Table 5-1 for reasonably foreseeable means of compliance to control bacteria in all sources as a way to show the potential costs that may be involved in addressing bacteria impairments. The items in Table 5-1 that would potentially apply to municipal stormwater are low-flow diversions, wet weather regional and sub-regional structural BMPs, administrative controls, and outreach and education. The Staff Report *does not* contain an extrapolation of such costs resulting from implementing combinations of various strategies because doing so would be a highly speculative exercise as we will now explain.

In contrast to a TMDL, where there is information about a specific water quality impairment that could serve as the basis for scaling unit costs to a watershed area, we have no reliable and specific information at this time for any of our currently identified water quality impairments (save those for which bacteria TMDLs are already being implemented and CEQA analyses have been performed) that could serve as a basis for the extrapolation urged by the commenter. That is one of the main reasons why the

proposed project does not contain specific requirements imposing control measures on municipal stormwater, because we do not yet have the information to specify which controls are necessary, or how many, or where they should be implemented in order to address impairments.

When a TMDL is developed, Water Boards gather information as to the specific sources contributing to that specific impairment, the sizes of watersheds involved, the features of the watersheds germane to selecting and siting control measures and so on. Armed with this information, Water Boards *can* establish specific requirements for dischargers that would be necessary to achieve and maintain water quality. And, because the specific requirements would be identified, it would then be the appropriate time to evaluate the overall impact of the sum total of the likely required control measures. Since we have not established such requirements in this project, we legitimately restricted our economics analysis to the unit costs of reasonably foreseeable control measures.

We also point out that there is another fundamental problem with performing the suggested extrapolation exercise as part of this amendment that would render it misleading if performed only for enterococcus. As we have already demonstrated elsewhere in this response document, when a water body is impaired by bacteria, the impairment is almost always evidenced by high concentrations of *all* bacteria indicator organisms, not just enterococcus. Therefore, when evaluating what measures must be implemented to achieve water quality standards for bacteria, it is not meaningful to attempt to establish the costs exclusively due to compliance with any single indicator objective. In fact, any reasonably foreseeable control measures for municipal stormwater or other sources would almost certainly be implemented in areas to protect receiving waters against high concentrations of pathogens as evidenced by high concentrations of *all* bacterial indicators.

We can provide two points of reference for how costs could add up for circumstances in which stormwater contributes to bacteria water quality problems, based on cost information from two TMDLs – the Richardson Bay TMDL from our region and the Ventura Beaches bacteria TMDL from the Los Angeles Region. Costs for updating municipal stormwater management plans to include additional pathogen reduction measures were estimated to be between an additional $2000 and $10,000 per year for all stormwater dischargers for the Richardson Bay pathogens TMDL (Table 20, page 84 of document cited in Staff Report as SFBRWQCB 2008). These costs are considered low as stormwater is a contributing source.

The Ventura Beaches TMDL (Staff Report citation, LARWQCB 2007, pages 73-75) relies on cost estimates from other Southern California beach TMDLs to estimate the total cost of implementing control measures. They estimated that local governments would need to install 10 additional diversions and maintain a total of 27 storm drain diversions in the 11.38 square mile watershed surrounding the two Ventura beaches for which the TMDL was developed. The cost of these diversions was estimated to be $717,386 for

construction, and $1.7 million in annual maintenance. The total cost for wet weather structural BMPs was estimated to be $3.24 million for the 11.38 square mile watershed. The total cost for administrative controls for the Ventura TMDL ranged from $0.39 million to $1.96 M and $0.98 million for outreach and education. These costs are high. Ventura beaches are heavily used beaches and stormwater is a major cause of exceedances of water quality objectives at these beaches. There is no information to suggest that implementation of this Basin Plan amendment would require such extensive installation of structural BMPs or this level of expenditure.

Comment 5.8: "Staff cannot defer appropriate section 13241 and CEQA analysis from the WQO adoption phase by trying to put it off to the later municipal stormwater permitting process."

Response: We have not deferred 13241 and CEQA analyses to the permitting process. We have conducted all regulatory analyses required by the California Water Code and CEQA that we can do without engaging in meaningless and unfounded speculation. We responded in more detail to the allegation of "deferring analysis" in response to comments 5.1 through 5.7.

Comment Letter 6: City of Sunnyvale

Comment 6.1: "Adopt all four enterococcus single sample maximum values in Table 3-1. Inclusion of all four levels of use SSMs and restricting their application to Designated Beach Areas will allow the appropriate level of protection to be matched to the level of use at designated beaches throughout the Region. This will help avoid the potential for higher levels of bacterial control measures being imposed beyond that necessary to protect the level of use in a given area (e.g., via future permit requirements)."

Response: This comment was addressed in the "Common Themes" section at the beginning of this document as well as in response to comment 5.2.

Comment 6.2: "Delete the water contact recreation total and fecal coliform objectives from Table 3-1 and incorporate the geometric mean (as proposed) and all four single sample maximum enterococcus values."

Response: See response to Comment 4.4 above.

Comment 6.3: "Add a footnote to Table 3-1 (and/or the implementation plan) indicating that the enterococcus geometric mean is the WQO for assessing water quality conditions in the San Francisco Bay Region and appropriate SSMs should only be used at Designated Beach Areas depending on level of use, such as when making beach notification and closure decisions or in cases where less (sic) than 5 samples were taken over a 30-day period at a particular Designated Beach Area site."

Response: This comment is identical to comment 4.3c. Please see response to that comment.

Comment 6.4: "As an alternative to (comment 6.2), delete the existing water contact recreation total coliform, fecal coliform and enterococcus objectives from the proposed revised Table 3-1. Instead adopt the entire existing Basin Plan Table 3-2 enterococcus and E. coli criteria as salt water and fresh water quality objectives."

Response: We addressed the issue of overhauling all bacterial indicator objectives in "Common Themes" as well as in our response to comments 1.1, 1.2, and 4.4.

Comment 6.5: "Delete Table 4-2A and associated footnotes and also delete total coliform effluent limits in Table 4-2. Also delete the text preceding Table 4-2."

Response: We addressed this issue in response to comment 1.5. Deleting Table 4-2A would mean that there would be no specification of effluent limits for bacteria indicators for wastewater permits. This would cause needless confusion as discussed in the response to comment 1.5.

Comment 6.6: "If Table 4-2A is not deleted, at a minimum, delete portions of footnote 'b' regarding effluent requirements for recycled water production. Namely, delete the text this may occur, for example, when wastewater treatment plants must also meet total coliform limits to achieve water quality objectives for recycled water."

Response: The commenter is apparently concerned that the identified text in footnote 'b' of Table 4-2A can be construed to mean that the *Water Board is requiring* that Title 22 recycled water criteria must be met by the discharge circumstances described in the footnote. This is not the case. However, we cannot simply eliminate the sentence, as suggested, because the footnote would then be too vague as to the circumstances in which the option of substituting total coliform for enterococcus may be considered by the Water Board. As an alternative approach to remedy this possible misinterpretation, we have proposed a wording modification in response to comment 1.10 that addresses the concern expressed in this comment.

Comment 6.7: "If Table 4-2A is not deleted, at a minimum, delete footnote 'b' text regarding imposition of total coliform limits for shellfish harvesting areas."

Response: We cannot remove the the total coliform effluent limitations from the Basin Plan because these limitations implement total coliform water quality objectives protecting the shellfish harvesting beneficial use. As explained earlier (see "Common Themes"), the State is currently engaged in a process to clarify this beneficial use as well as the bacteria objectives that support it. For this reason, this amendment does not address the shellfishing beneficial use, its supporting objectives, or effluent limitations to protect this use.

Comment 6.8: "Add the following sentence to footnote 'b' of Table 3-1: *The standards would not be applicable where shellfish are not harvested for recreational or commercial purposes.*"

Response: This is an inappropriate change for the same reasons discussed in response to comment 6.7. The scope of this project does not include addressing the shellfish harvesting beneficial use or related objectives. We are not willing to restrict the application of the bacteria objectives protecting the shellfish harvesting beneficial use as suggested, because the suggested change would not resolve the implementation issues associated with these objectives.

Comment 6.9: "Delete footnote 'd' in Table 4-2 for oil and grease. This would allow the Water Board staff the discretion to not include oil and grease effluent limitations in NPDES permits for POTWs with long periods of consistent compliance with this parameter. The typical sampling requirements to collect and composite multiple oil and grease grab samples over the course of a day adds to POTW operating costs without providing water quality benefits"

Response: This change is outside the scope of the proposed amendment. Moreover, there are still regularly occurring violations of the oil and grease effluent limitations for secondary treatment facilities so there are compelling reasons to maintain the current permitting practice of including these limits.