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SUBJECT: COMMENTS ON THE DRAFT MALIBU CREEK WATERSHED BACTERIA TMDL

We appreciate the opportunity to review and comment on the Bacteria Total Maximum Daily Load for the Malibu Creek watershed. Comments detailed as a result of the Regional Board's staff review focus on the clarity of the document or address a few minor errors.

3. Problem Statement (paragraph at bottom of page 15 through top of page 16)

Comment: This paragraph is very confusing and relies heavily on the availability of the Tetra Tech modeling report to the reader.

EPA Response: *This section deals with the assumptions used to estimate bacterial loadings from septic systems in the area around Malibu Creek. We have edited this section.*

Recommendation: Either more detail must be given or (preferably) the Tetra Tech report should be included in an Appendix.

EPA Response: *As noted above we have edited this section to make it clearer. In addition we note that the text of the Tetra Tech report was made available to the Regional Board and to all the stakeholders that requested it.*

2. ***Environmental Setting (page 5, paragraph 1)***

Comment: Flow in tributaries within the Malibu Creek watershed can be discontinuous during the summer dry season. Based on the Tetra Tech modeling report, it is clear that in the model all tributaries were assumed to flow continuously throughout the year.

EPA Response: *EPA determined that changes in the TMDL are not warranted in response to this comment. We note that the Regional Board worked with Tetra Tech to develop the model, to define the model assumptions and to evaluate the flow calibration for the model. This model limitation has not practical effect on the TMDL calculations.*

Recommendation: Add a description regarding the discontinuity of flow (interruptions in flow due to lakes or typically dry sections of stream) in order to convey a more accurate picture of the watershed. The current description implies a more "all-or-none" flow regime.

EPA Response: *We have added a note that there are times when the river is dry.*

(page 5, paragraph 4)

Comment: The following passage is not accurate: "Malibou Lake also receives flow from a number of waterbodies that are listed for bacteria impairments, specifically Lindero Creek, Medea Creek and Palo Comado Creek." This is not an accurate description, since Lindero Creek and Palo Comado Creek flow into Medea Creek; not Malibou Lake.

EPA Response: *Malibou Lake receives flows from these waterbodies indirectly. The flows and associated runoff from the Lindero Creek watershed and the Palo Comado Creek flow into Medea Creek. The intent of this language was to identify the impaired waterbodies and emphasize the relationship between the upstream and downstream subwatersheds with respect to fecal coliform loadings*.

Recommended Language: "Malibou Lakes also receive flow from Medea Creek, which is impaired for coliform. Medea Creek receives flow from two impaired creeks: Palo Comado and Lindero Creek."

EPA Response: *We have modified the text as requested.*

1. Problem Identification
b. Assessment of existing conditions relative to numeric standards (page 9, paragraph 3)

Comment: The TMDL uses mean total coliform concentrations for the purpose of inferring something about the overall concentration of coliform in the tributaries. Given the great variability and spread of coliform data, the mean may not be appropriate to describe the data.

EPA Response: *The discussion of total coliform concentrations is centered around the information provided in Table 5 of the TMDL. In that table we provide information on the mean, but also information on the percentage of samples that exceed the concentration thresholds of 1000 CFU/100 ml and 10,000 CFU/100 ml. We believe that this provides sufficient perspective for evaluating the extent and magnitude of the threshold exceedances.*

Recommendation: Calculate and describe the geometric mean of the total coliform concentration.

EPA Response: *Since the total coliform standard does not apply to fresh water, we see no value in calculating the 30-day geometric mean. As discussed above, in terms of providing perspective on the extent of the problem, we see little added value in terms of calculating the geometric mean.*

2. Numeric Targets: "Recognizing that these multiple standards apply, the analysis and the allocations presented in this TMDL are based solely on exceedances of the fecal coliform standard." (page 10, paragraph 1)

The Regional Board understands that there is little to no data available on Malibu Creek, its tributaries, lakes and lagoon for some of the recently adopted bacteriological water quality objectives that this TMDL is intended to achieve. This is particularly problematic for *E. coli* (in freshwater) and enterococcus (in marine water). However, there is a significant amount of data on total coliform, which could be used to determine appropriate load reductions to achieve the total coliform objective for marine waters in Malibu Lagoon.

EPA Response: *We disagree that EPA could have used the existing total coliform data to determine appropriate load reductions in Malibu Lagoon. The Regional Board may consider this in future TMDL reviews.*

Furthermore, if the fecal coliform and total coliform data were collected during the same site-events, the data could be used to determine appropriate load reductions to achieve the additional total coliform objective for marine waters based on the total-to-fecal coliform ratio.

EPA Response: *The number of data points where we have both total and fecal coliform data is very small. We were not able to develop a reliable total-to-fecal coliform ratio.*

While the local relationship between fecal coliforms and *E. coli* has not been established, there are other studies that have examined this relationship, arriving at a general rule-of-thumb that *E. coli* represents 80% of fecal coliforms. Until local data becomes available this rule-of-thumb could be used to set load allocations to meet the *E. coli* objective, which EPA has found is better correlated with human health risks. Using this rule-of-thumb, meeting the fecal coliform objective of 400 cfu/100 ml would reduce the *E. coli* concentrations to 320 cfu/100 ml, which is significantly higher than the current *E. coli* objective of 235 cfu/100 ml. This suggests that larger reductions than those proposed for fecal coliform may be necessary to achieve the *E. coli* objective.

EPA Response: *EPA developed TMDLs for fecal coliform because the listings were based on fecal coliform. Furthermore we have no evidence to suggest that the waterbodies in the Malibu Creek watershed are impaired due to E. coli. However, we explored the options of using the 80% rule-of-thumb or the ratio of 235/400 to identify load reductions for E. coli. We rejected both options because there is such tremendous variability in the concentrations of E. coli and fecal coliform to make such ratios meaningless. The TMDL makes it clear that all standards must be met and EPA believes that actions necessary to reduce fecal coliform loads to implement the allocations will reduce loads of other bacterial indicators. We believe that reductions in fecal coliform loadings will result in reductions in E. coli loadings and that all appropriate bacteria standards will be met*.

In summary, at a minimum the TMDL should clearly state in section 2, Numeric Target, that all applicable freshwater and marine objectives must be met subject to the prevailing implementation procedures.

EPA Response: *The TMDL states that all applicable bacteria objectives must be met.*

Further, the TMDL should state that monitoring of all applicable objectives must be conducted to provide this assurance. The assumption that actions required to meet the numeric target for fecal coliform will result in compliance with other bacterial objectives is far from being verified and, therefore, it is imperative that it is tested as part of the monitoring plan.

EPA Response: *This TMDL states that monitoring is needed for fecal and E. coli in freshwater systems and for total coliform, fecal coliform and enterococcus in the lagoon.*

Recommendation: Clearly state the importance of testing these assumptions early in the TMDL (section 2, Numeric Target) as well as in section 7, Monitoring.

EPA Response: *There is language in the TMDL to recommend special studies to evaluate the relationship between E. coli and fecal coliform concentrations*.

2. Numeric Targets: "The reference watershed approach is used to set a numeric target for the single sample standard." (page 11, paragraph 1)

Note that the Regional Board's approach is a "dual" reference system/anti-degradation approach. The Regional Board states clearly that, "[u]nder the reference system/anti-degradation implementation procedure, a certain frequency of exceedance of the single sample objectives above shall be permitted on the basis of the observed exceedance frequency in the selected reference system *or the targeted water body, whichever is less*" [emphasis added].

EPA Response: *The TMDL approach is consistent with this comment. In this TMDL we were limited by the lack of historic fecal coliform data within the Malibu Creek watershed to establish reference-based or antidegradation-based targets. For that reason, we applied targets used in the Santa Monica Bay Beaches TMDL*.

Furthermore, per the SMB Beaches TMDL, this approach is applied on a seasonal basis (i.e., summer dry weather, winter dry weather and wet weather).

EPA Response: *We acknowledge this discrepancy and have modified the TMDL accordingly to reflect wet weather exceedances (17 days), winter dry weather (3 days) and summer dry weather (0 days). The summer dry weather period is defined as April 1 to October 31, to be consistent with the Santa Monica Bay Beaches TMDL*.

Therefore, any water body segments in the Malibu Creek watershed that exceed less frequently than the reference system – for any of the three seasonal periods – should be subject to the anti-degradation provision. The EPA TMDL does not clearly discuss the applicability of the anti-degradation provision that is an integral part of the reference system/anti-degradation implementation procedure. This should be clearly described in the TMDL, particularly in light of the fact that some unimpaired or unassessed water bodies[1] are included within the analytical framework of the TMDL as a result of their hydrologic connection to impaired water bodies. Monitoring of unassessed water bodies included in the TMDL

[1] Hidden Valley Creek, Potrero Canyon Creek, Triunfo Creek, Cheeseboro Creek, Cold Creek, Lake Sherwood, Westlake Lake, Lake Lindero, and Malibou Lake.

should be included in section 7, Monitoring, to determine whether these water bodies should be subject to the reference system provision or anti-degradation provision.

EPA Response: *As discussed above there was very limited data available to define a reference watershed or to establish a baseline for the antidegradation approach for setting the acceptable number of exceedance days. In the TMDL, EPA identified the need for additional monitoring in the upper watersheds and the need for special studies to evaluate if the reference approach is appropriate for the upper watersheds. Lacking this data we based the TMDL on predictions from the model, which indicated that exceedances of the single sample standard in the creeks and lagoon whenever it rained. The TMDL provides for reductions in loads from upstream waters that are tributary to the listed segments for which TMDLs are established in order to ensure that the TMDLs are attained.*

Furthermore, given the seasonal implementation of the reference system/anti-degradation approach, data on each impaired water bodies should be analyzed to determine the exceedance frequency for each period and, thus, whether the reference system or anti-degradation provision applies.

EPA Response: *We could not do the comparison of reference approach vs. antidegrdation approach because there was insufficient fecal coliform data in the watershed to use the antidegradation approach for setting targets. Based on the model results we estimated the number of exceedance days for wet days and for dry days at seven compliance points in the watershed (See table 15). In all cases the number of exceedance days was far greater than the targets established in this TMDL. This TMDL will result in significant reductions bacterial loadings to the watershed and significant reductions in the number of water quality exceedances throughout the watershed*.

Further, the marine surf-zone reference site used in the SMB Beaches Bacteria TMDL is not the most appropriate reference site for the inland and estuarine waters of Malibu Creek, its tributaries, Malibu Lakes, and Malibu Lagoon. The Regional Board recognized that due to the unique characteristics of some water bodies, an appropriate regional reference site may not exist.

EPA Response: *Lacking data to generate reference conditions for freshwater watersheds, load reductions were developed relative to modeled loads. Since all the creeks in the watershed ultimately drain to the lagoon and the lagoon is the major source of impairment to Surfrider and Moonlight Beach, we felt it appropriate to make sure that the targets were at least consistent with the targets established of those beaches as part of the Santa Monica Beach TMDL adopted*

by the Regional Board. The model predictions were based on the same basic set of assumptions used in the Santa Monica Bay Beaches TMDL.

Therefore, the Regional Board adopted into its implementation procedures for the bacteria objectives, a companion approach called the "natural sources exclusion approach." When adopting this approach, the Regional Board envisioned a situation such as Malibu Creek watershed. This companion approach and its potential applicability to Malibu Creek watershed should be discussed more fully in section 2, Numeric Target.

EPA Response: *We are fully aware of the natural source exclusion approach and reference it in the TMDL. However, we have not seen any information from the Regional Board as to how this approach is to be implemented or the thresholds for data collection and analysis that would be required to use this approach. Therefore, we considered it more appropriate to base this TMDL on the reference approach.*

Therefore, while it may be necessary due to lack of data to use the Leo Carrillo reference site (with its corresponding allowable exceedance days) in the interim, it is imperative that as part of the monitoring plan (presented in section 7), more appropriate reference sites are considered along with the applicability of the natural sources exclusion approach versus the reference system/anti-degradation approach.

Recommendation: Assess whether subwatershed specific numeric targets need to be established to ensure compliance with anti-degradation provisions. Also, as part of the monitoring plan for the TMDL, consider reference sites within the Malibu Creek watershed along with the applicability of the natural sources exclusion approach versus the reference system/anti-degradation approach.

EPA Response: *There is insufficient information available to use the anti-degradation approach to establish numeric targets at the subwatershed scale. The TMDL identifies the need for additional monitoring and special studies to refine the reference/antidegradation approach for the subwatersheds. The TMDL also identifies the need for a special study to evaluate the applicability of the natural source exclusion approach to Malibu system. The TMDL calls for significant reductions in bacterial loadings during both dry-weather and wet-weather conditions. There is no increase in loadings allowed under this TMDL and therefore no violation of the antidegradation provision.*

4b. Critical Conditions and Seasonality (page 21)

Comment: Note that in the SMB Beaches Bacteria TMDLs, the Regional Board used a modified storm year (April 1-October 31) as the critical condition and chose the 90th percentile modified storm year in terms of wet days (not rain days). This differs somewhat from the approach used in the Malibu TMDL.

Recommendation: Note difference in approach.

EPA Response: *EPA used the 1993 calendar year instead of the modified storm year. We are aware of the difference and have noted the difference in the text of the TMDL. The net affect of this difference on the overall TMDL is minor. The Regional Board may consider changing this in future TMDL reviews or revisions*.

c. Application of the model to link loadings to water quality (paragraph at bottom of Page 22 through top of page 23)

Comment: There is currently no rationale to explain how the 3 days dry-weather and 17 days wet-weather exceedance allowances were derived.

EPA Response: *The rationale for the exceedance days is discussed earlier in the TMDL document (page 12)*.

Recommendation: Discuss how the 3 days dry-weather and 17 days wet-weather allowances were derived or reference the Santa Monica Bay coliform TMDL.

EPA Response: *The Santa Monica Beaches TMDL is referenced in the TMDL*.

5. Pollutant Allocation and TMDL
b. Load Allocations (page 26, Tables 18 and 19)

Comment: Based on Table 18, Tapia's existing coliform loading is 1.2×10^9 per day, and the proposed allocation is 2.4×10^9. This increase is described as "an allowance for Tapia's discharge exceptions," as allowed by its NPDES permit. The discharge exceptions should not be included as part of the wasteload allocations, since they are exceptions to a prohibition. Also, increasing Tapia's colifom effluent load seems to be contrary to "antibacksliding" requirements.

Recommendation: Provide an allocation for Tapia that equates to the existing load.

EPA Response: *There is no increase in Tapia's effluent load in this TMDL. The apparent increase is explained by difference between the existing loads and loads allowed under the existing permit. There is no violation of the antibacksliding requirements because there is no relaxation of existing permit limits. There is no violation of antidegradation because there is no worsening of water quality. As discussed in the TMDL the discharge of treated and disinfected effluent from Tapia does not significantly add to the total bacterial load to the watershed and actually increases the loading capacity of the creek.*

Thank you for the opportunity to comment on the Malibu Creek Bacteria TMDL. Should you have any questions regarding our comments please contact Renee DeShazo (213/576-6783) or Rod Collins (213/576-6691).

Sincerely,

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