February 11, 2003

Terrence Fleming
U.S. Environmental Protection Agency Region 9, WTR-2
75 Hawthorne Street
San Francisco, CA 94105

Sent Via Fax: (415) 947-3537

RE: Fecal Bacteria TMDL for Malibu Creek Watershed

Dear Mr. Fleming:

The following letter summarizes the comments of Heal the Bay and the Santa Monica Baykeeper, collectively referred to as 'Heal the Bay', on the Fecal Bacteria TMDL for Malibu Creek Watershed.

Heal the Bay has actively worked on beach fecal pollution issues for over 15 years and is well qualified to review and comment on EPA's draft Bacteria TMDL for the Malibu Creek Watershed. We co-authored the Santa Monica Bay Restorations Project's 1995 Epidemiological Study; co-authored AB-411 and AB-538, the assembly bills that established California's bacteria health standards for marine beaches and sanitary survey protocols; and actively participate in the State Beach Water Quality Workgroup and the Clean Beach Advisory Group (the State Water Board's technical advisory group for reviewing projects under the Clean Beach Initiative). For over 10 years, we have published the Beach Report Card, a weekly grade card of the bacterial water quality at beaches at over 375 beaches throughout California. For three years, we participated in a technical committee set up and led by the Los Angeles RWQCB to discuss and assist in the development of the Santa Monica Bay fecal bacteria TMDLs. Heal the Bay has advocated for comprehensive wastewater management in Malibu for 10 years. We co-authored AB-885 which will set State standards for septic tanks and are actively participating in the development of the AB-885 regulations. In addition, for the past 4 years, Heal the Bay has routinely monitored several sites within the Malibu Creek Watershed as part of our Stream Team program.

Heal the Bay has reviewed the proposed TMDL and we believe it contains several serious flaws. First, the TMDL is entirely structured around fecal coliform bacteria. EPA's analysis of existing impairment is improperly based solely on historical fecal coliform data and load allocations are assigned for fecal coliform only. This is a fundamental flaw of the TMDL because fecal coliform does not correlate with health risks associated with

swimming in sewage-contaminated freshwater, and the quantitative relationship between fecal coliform and E. coli is unknown. Reducing bacteria loads to the freshwater components of the Malibu Creek system to achieve fecal coliform standards will not ensure compliance with E. coli standards. Likewise, meeting fecal coliform standards in the saltwater Malibu Lagoon will not ensure compliance with the enterococcus standards. Second, the allowance of exceedances of the health standards is wholly unsubstantiated in the supporting documentation for this TMDL. The reference location used to identify the number of allowable exceedances is a marine surfzone site located at the bottom of a different watershed and is completely inappropriate for the freshwater portions of the Malibu Creek watershed. Moreover, analysis of historical data collected at Heal the Bay's reference sites within Malibu Creek does not support allowing exceedances of the E. coli standard during dry weather. In addition, no rainfall analysis of the historical bacteria data was conducted, even though the TMDL provides for allowable exceedances of the health standards for both wet and dry weather. Finally, this TMDL includes no mechanism to ensure the antidegradation requirements of the Clean Water Act are met because existing water quality was not established. These concerns are addressed in detail below.

1. **The Bacteria TMDL for the freshwater components of the Malibu Creek Watershed should be based primarily on E. coli bacteria instead of fecal coliform. The fecal coliform load and waste load allocations in the TMDL will not ensure compliance with Region IV's Basin Plan standards for E. coli. The TMDL may not restore or protect freshwater REC-1 beneficial uses.**

As discussed in the proposed TMDL, the Region IV Basin Plan includes REC-1 freshwater bacteria standards for both fecal coliform and E. coli. The TMDL addresses only fecal coliform.

We find it unexplainable that the EPA would base this TMDL, the goal of which is to protect swimmers' health, solely on fecal coliform which correlates poorly with human health risks and runs completely contrary to EPA's recommended bacteria criteria for freshwater.

EPA Response: *We focused the TMDL on fecal coliform because the listing was based on exceedances of the fecal coliform standard. Available evidence does not suggest that concentrations of E. coli are exceeding applicable water quality standards or are causing use impairments in the waterbodies within the Malibu Creek watershed*.

As clearly shown in EPA's own comprehensive epidemiological studies, fecal coliform is not a good indicator of human health risks associated with swimming in freshwater. The EPA's health effects criteria for fresh recreational waters clearly states "Fecal coliform densities showed little or no correlation to gastrointestinal illness rates in swimmers." [1] Moreover, per the 1999 Beach Act, the EPA is currently directing all States to replace fecal coliform recreational water standards with E. coli standards for freshwater. The

[1] Dufour, A.P., 1984, Health Effects Criteria for Fresh Recreational Waters, U.S. EPA, EPA-600/1-84-004, page iv.

draft EPA Implementation Guideline for Bacteria Criteria states that the transition of States' criteria from fecal coliform to E. coli "continues to be an Agency priority."[2]

EPA Response: *Nothing in this TMDL is meant to contradict the BEACH Act or the EPA Guidance for Implementation of the 1986 Bacteria Criteria. EPA Region 9 approved the Region Board 4 Basin Plan amendment which incorporates the EPA criteria for E. coli as an objective in the Basin Plan. The TMDL document emphasizes the importance of attaining the E. coli and enterococcus standard. EPA's expectation is that when this TMDL is implemented, compliance with all the water quality objectives for bacteria will be achieved. If, however, that is not the case, or if the Regional Board determines that a separate TMDL for E. coli or enterococcus should be established, the Regional Board should identify the impaired segements as water quality limited for E. coli or enterococcus under CWA 303(d)(1)(A) and prepare a TMDL for these specific pollutants.*

The EPA states in the TMDL that "actions targeted toward the reduction of fecal coliforms in the watershed will also reduce concentrations of … E. coli." While it is true that reducing fecal coliform sources will also reduce E. coli, meeting the fecal waste load and load allocations defined in the TMDL will likely not result in low enough E. coli densities to protect the REC-1 beneficial use in the watershed. The quantitative relationship between E. coli and fecal coliform has not been well-established in the literature and is likely influenced by many factors including source, rate of survival and rate of multiplication in the environment. EPA presented no data to support the critical assumption that meeting the fecal bacteria waste load and load allocations will result in compliance with the E. coli standards. In fact, applying the general rule of thumb typically used in the microbiological arena that E. coli comprises 80% of the fecal coliform group shows that reducing fecal coliform loads as assigned in the TMDL will not lead to compliance with the E. coli standards. Not withstanding the fact that the quantitative relationship between fecal coliform and E. coli likely varies depending on source and environmental factors, meeting the fecal coliform standard of 400 cfu/100 ml would reduce E. coli levels to 320 cfu/100 ml which is more than 35% higher than the E. coli health standard of 235 cfu/100 ml. Thus, it is likely that the fecal waste load and load allocations in the TMDL are too high to protect and restore the REC-1 beneficial use in the Malibu watershed.

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 apply 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*

[2] U.S. EPA, Implementation Guidance for Ambient Water Quality Criteria for Bacteria, May 2002 draft, EPA-823-B-02-003.

will result in reductions in E. coli loadings and that all appropriate bacteria standards will be met

EPA states that the TMDL is based on fecal coliform because more data was available for this indicator. Limited available data does not justify development of a TMDL that ignores basic scientific understanding of the epidemiology of swimming-related illnesses and the microbiology of bacteria indicators, or developing a TMDL that will probably fail to protect and restore beneficial uses.

We recommend that EPA, at a minimum, revise the TMDL to:

a) Include waste load and load allocations for E. coli bacteria for the freshwater water bodies;
b) Clearly state in the TMDL that compliance with the TMDL will be assessed based on allowable exceedances of both the fecal and E. coli health standards;
c) Discuss the importance of the E. coli standards relative to the protection of swimmers in freshwater waterbodies because this indicator correlates with incidences of adverse health effects.

If the TMDL is not revised to include these three elements, then EPA is ignoring decades of its own scientific investigations conducted in an effort to protect the public health related to swimming in recreational waters.

EPA Response:

a) We are focusing on fecal coliform because the listing was based on fecal coliform. There is there is no evidence of impairments associated with E. coli and there is no basis for developing load allocations for E. coli.
b) The TMDL makes it clear that all bacterial water quality objectives apply. We believe that reductions in fecal coliform loadings will result in reductions in E. coli loadings which should help ensure that the E. coli standard is met.
c) The text of the TMDL has been edited to reflect the importance of the E. coli standard relative to protection of human health.

2. The TMDL should include enterococcus waste load and load allocations for sources that significantly impact Malibu Lagoon.

The same argument outlined in our comment #1 on E. coli and the freshwater components of the Malibu Creek watershed apply to enterococcus and Malibu Lagoon. The relationship between fecal coliform and enterococcus is even more poorly established; however, analysis of the large marine microbiological monitoring data collected at beaches in Southern California indicates that enterococcus densities typically

determine compliance with the State health standards in saltwater, not fecal coliform[3]. In addition, EPA epidemiological studies[4] and the Santa Monica Bay epidemiological study[5] show enterococcus is a better indicator of health effects on swimmers in saltwater than to fecal coliform alone. Thus, for this TMDL to protect the health of swimmers at Malibu Lagoon, the State standard for enterococcus must be met.

EPA Repsonse: *We are aware of and have reviewed the references cited. We understand the utility of enterococcus standard as an indicator. EPA Region 9 approved Regional Board 4 Basin Plan amendment incorporating the EPA's enterococcus criteria as an objective in the Basin Plan. This TMDL states that marine standards for enterococcus apply to the lagoon. The TMDLs are set specifically for fecal coliform because the listing for the lagoon is based on coliform bacteria.*

To achieve this, load and waste load allocations for enterococcus must be assigned to sources of bacteria into the lagoon and compliance monitoring for enterococcus must be completed in the lagoon. We recommend EPA assign the appropriate enterococcus load and waste load allocations and recommend monitoring for enterococcus, along with fecal and total coliform in the lagoon to ensure protection of public health and compliance with Region IV Basin Plan.

EPA Response: *Load allocations are not required for enterococcus since the listing of the watershed was not based on enterococcus. In the TMDL, EPA recommends monitoring of total coliform, fecal coliform and enterococcus in the lagoon*.

In addition, Malibu Lagoon flows directly to Surfrider Beach, the most polluted beach for fecal bacteria in Santa Monica Bay. The Santa Monica Bay TMDL is based on all three indicators (enterococcus and fecal and total coliform). As Malibu Lagoon is the only significant direct source of fecal bacteria to Surfrider Beach, it is absolutely critical that the TMDL for the Lagoon is at least as stringent and comprehensive as the Santa Monica Bay beaches TMDLs. If enterococcus waste load and load allocations are not established in this TMDL, this decision will ensure that the TMDL for Santa Monica Bay beaches will not be met at Surfrider Beach, putting at risk more than 1.2 million annual visitors to this world famous beach.

EPA Response: *We are aware of the fact that the Santa Monica Bay Beaches TMDL is based on total coliform, fecal coliform and enterococcus. The commenter provides no evidence to support the assertion that failure to include allocations for enterococcus in this TMDL will result in non attainment of the Santa Monica Bay Beaches TMDL. EPA's expectation is that when this TMDL is implemented, compliance with all the water quality objectives for bacteria will be achieved.*

---

[3] Noble, R.T., Leecaster, M.K., Moore, D.F., Schiff, K.C., and Weisberg, S.B., 2001, Relationship among bacterial indicators during a regional survey of microbiological water quality along the shoreline of the Southern California Bight, SCCRWP Annual Report 1999-2000, Fountain Valley, California.
[4] U.S. EPA, 1986, Ambient Water Quality Criteria for Bacteria – 1986, EP440/5-84-002.
[5] Haile, H.W., et al., 1999, The Health Effects of Swimming in Ocean Water Contaminated by Storm Drain Runoff, Epidemiology, Vol. 10, No. 4.

3. Leo Carillo beach, a marine surfzone point, is not an appropriate reference location for the freshwater waterbodies located throughout the Malibu Creek watershed. For this TMDL to be scientifically defensible, a reference location that is located in an unimpacted freshwater segment within Malibu Creek watershed should be used.

The TMDL uses the Leo Carillo beach monitoring location as a reference site for the Malibu Creek watershed to account for natural sources of bacteria. The Leo Carillo site was used as the reference location for the Santa Monica Bay wet and dry weather TMDLs.

It is inconceivable to us that the EPA is proposing to use Leo Carillo beach to account for natural sources of bacteria in the Malibu Creek Watershed. The Leo Carillo beach monitoring station is a saltwater, surfzone location. The natural sources of bacteria in this location are not representative of the natural source affecting the freshwater waterbodies of the Malibu watershed. For example, the types and density of birds is very different for a marine beach versus a freshwater creek. Moveover, the bacteria indicators have different survival rates in freshwater and saltwater, so even if the natural sources of bacteria were similar, the composition of the bacteria community will be very different at Leo Carillo compared to the freshwater locations within Malibu Creek. In addition, the exceedance rate at Leo Carillo is based primarily on enterococcus exceedances, which has no relevance to the freshwater locations within the Malibu watershed. Finally, Leo Carillo is located at the bottom of the watershed and is impacted by the cumulative effect of the natural sources within the entire watershed. Thus, the number of exceedances at Leo Carillo would represent a worse case exceedance rate and is not applicable to most of the popular freshwater swimming locations within the Malibu Creek Watershed.

EPA Response: *The rationale for selecting Arroyo Sequit as a reference watershed is described in the TMDL. The greatest bacterial loads in the Malibu Creek watersheds are associated with runoff. We can not expect runoff from watersheds in Malibu Creek to have lower loads than those in associated undeveloped areas. Arroyo Sequit is 98% undeveloped and presents the best case for a reference watershed in the area. In terms of predicted loads the issue of freshwater vs marine water is irrelevant. EPA acknowledges the limitations of applying exceedance days based on Leo Carillo Beach to other watersheds. However we felt it necessary to ensure that the TMDL would be consistent with the approach and requirements planned to protect beneficial uses at the beaches outside of Malibu Lagoon. We have recommended studies in the TMDL to evaluate if the reference approach is appropriate for the upper watersheds and/or to determine if a natural source exclusion approach would be more appropriate.*

Even for other marine beach locations, the use of Leo Carillo as a reference location was questioned during the development of the Santa Monica Bay TMDLs. This location may be inappropriate because, although the bulk of the Arroyo Sequit Canyon is undeveloped open space with predominantly natural sources of fecal bacteria, the bottom of the watershed has a number of potential anthropogenic sources including a heavily used

campground with restroom facilities located near the monitoring station. In addition, the beach and lower watershed is heavily used for recreation and human sources of fecal bacteria are not uncommon. Based on these concerns and others, the Santa Monica TMDLs include re-openers and study requirements to examine the appropriateness of Leo Carillo as a reference location for saltwater beaches.

Additionally, during the development and adoption of the Santa Monica Bay TMDLs, the Regional Board repeatedly stated that they would not apply the analysis completed on Leo Carillo data to Malibu Surfrider beach or Lagoon or Ballona Creek because these systems are significantly different than the Leo Carillo site and because they had requirements for separate fecal bacteria TMDLs. Thus, it is ironic that the EPA is now attempting to apply this reference site to the Malibu Creek bacteria TMDL. We urge the EPA to discuss with the Regional Board staff the reasons why they decided not to apply Leo Carillo data to Malibu Surfrider and Lagoon.

EPA Response: *We relied on the reference watershed approach because even with the Heal the Bay data, there is simply not enough historic data that could be used to establish site-specific targets based on an anti-degradation approach. The Regional Board has suggested that EPA use a natural source exclusion approach that will soon be part of the implementation policy for implementing the revised Basin Plan standards for bacteria. However, the Regional Board has not provided any guidance as to how this implementation procedure would be implemented. The State may consider alternative approached to setting numeric targets in future TMDL reviews.*

In summary, the use of Leo Carillo beach monitoring station as the reference location for this TMDL is not scientifically defensible. EPA should choose another reference location or locations within the Malibu Creek watershed. Currently, Heal the Bay monitors several sites that we believe can serve as reference locations for this TMDL. These sites were chosen for our Stream Team program after a comprehensive investigation of potential sites throughout the watershed including review of aerial photographs, delineation of subwatersheds, and thorough field investigations for sources. Figure 1 shows the location of Heal the Bay's reference locations that we believe would be appropriate reference locations for this TMDL. Data from these sites show that exceedances of E. coli during dry weather due to natural sources of bacteria in the watershed are rare (Please see our comment #6).

4. EPA has failed to show the need for allowing exceedances of the health standards due to natural sources of bacteria.

The draft TMDL includes numeric targets that are comprised of the applicable health standards and allowable exceedances to account for natural sources. These allowable exceedances originate from the number of exceedances at the reference site, Leo Carillo. As discussed in our comment #3, this reference site is completely inappropriate for this TMDL. Moreover, based on our review of the TMDL, the EPA failed to show the need for exceedances because they did not analyze data from any unimpacted site within the

watershed. All sites in Tapia's monitoring program are impacted by anthropogenic sources of fecal bacteria and can not serve as reference sites.

In summary, it is unconscionable for the EPA to propose allowing exceedances of the health-based bacteria standards at recreational waters where people frequently swim unless it is clearly established that natural sources alone lead to exceedances of these standards.

EPA Response: *EPA based the need for allowing exceedances on the model which predicts exceedances associated with any storm greater than 0.1 inch even from the largely undeveloped areas in the upper portions of the watershed. We did not use the Tapia data to establish reference sites. We did not use historical data from reference sites because there was simply not enough historical data available at the time. We have reviewed the Heal the Bay data and conclude that the data is too limited at this time for addressing this issue either way. There are too few data sites (9), reflecting too short a period (monthly samples taken of the course of one year). The samples also only reflect the dry period and so don't truly represent the range of conditions over the course of the year. Given the lack of historical data we believe that model results provide sufficient justification for setting allowable wet-weather exceedance days*.

5. Allowance of exceedances of the health standards to account for natural sources should not be limited to a "one-size fits all" approach for the entire watershed.

As discussed above, we recommend EPA complete an exceedance rate analysis of historical data collected at appropriate unimpacted sites within the watershed to determine if there is a need to allow exceedances of the health standards. If the EPA can establish that exceedances of the health standards are necessary because of natural sources, then a "one-size fits all" approach to allowing exceedances within the watershed may be inappropriate since the cumulative impact of natural source loading into the freshwater system may warrant allowable exceedances in the lower part of the watershed, but fewer or none in the upper portion. In addition, given Malibu Lagoon's unique biological resources, additional exceedances to account for natural sources at this location may be necessary. However, the needs of Malibu Lagoon should not be inappropriately applied to the rest of the watershed. We recommend the establishment of several reference sites located at different points in the watershed that can be used to determine the impact of natural sources at various locations.

EPA Response: *EPA agrees that it would be appropriate to re-evaluate the allowance for exceedances to account for natural sources. However, as suggested above EPA does not believe that the data set is robust enough in size for this purpose at this time. The second issue that is being raised by HTB is one of scale. We agree that a "one size fits all" approach is not ideal and that these issues should be re-evaluated at a later time to determine if the natural source exclusion approach can be refined to the scale of individual subwatersheds to account for differences in natural sources. We have recommended special studies be done to evaluate the appropriateness of the reference approach and the need for natural source exclusion*.

6. EPA's numeric target of 3 days of allowable exceedances of the freshwater standards during dry weather is not supported by existing data collected by Heal the Bay's Stream Team. Analysis of monthly E. coli data collected at 9 reference sites supports allowing 0 days of exceedances of the E. coli standards during dry weather[6].

Analysis of one year of monthly monitoring at Heal the Bay's reference locations for E. coli supports the conclusion that natural sources do not result in exceedances of the E. coli standard during dry weather year-round. As shown in Table 1, of the 73 samples collected at 9 reference locations throughout the watershed over a one-year period, only 1 sample exceeded the E. coli single sample standard of 235 cfu/100 ml. This data analysis indicates that exceedances of the E. coli standard rarely occurs during dry weather at sites receiving bacteria only from natural sources. This E. coli data is particularly important for the TMDL because, as already discussed, E. coli correlates with health effects while fecal coliform, the indicator the EPA based the TMDL on, does not. It is important to note that Heal the Bay's site 19 is located along Arroyo Sequit, the freshwater creek that drains to Leo Carillo. None of the seven samples collected there during 2002 exceeded the E. coli health standard, further evidence that 3 days of allowable exceedances is inappropriate.

In addition, the TMDL for Santa Monica Bay beaches requires no exceedances of the health standards at Surfrider Beach from April 1st to October 31st. For this TMDL to be consistent with the Santa Monica Bay TMDLs at Surfrider Beach, no exceedances of the standards should be allowed in dry weather at the Lagoon when the barrier is breached.

In summary, we believe EPA should not allow exceedances of the health standards during dry weather in the Malibu Creek watershed.

EPA Response: *We have edited the TMDL to more accurately reflect the seasonal approach used in the Santa Monica Bay Beaches TMDL. Specifically we are allowing 17 days of exceedances during the wet-weather, 3 days of exceedances during the winter-dry weather period, and 0 days of exceedances during the summer dry period. We re-define the summer dry-weather period to April 1st to October 31st. We believe that the 3 day winter dry-season allowance is appropriate. We note that 1 exceedance in 73 samples is slightly greater than 1%, which when extrapolated to a year is 5 days.*

7. The draft TMDL will likely violate the Clean Water Act's antidegradation requirements. Allowing 3 and 17 days of exceedances during dry and wet weather, respectively, to account for natural sources will likely result in the degradation in microbiological water quality in several segments of freshwater creeks and streams within the Malibu Creek watershed.

Although the TMDL states a "reference system/antidegradation approach" is used, there is no discussion on how EPA has determined that allowing 3 days of exceedances during

[6] Heal the Bay's Stream Team data does not include wet weather sampling events.

dry weather and 17 days of exceedances during wet weather will ensure no degradation of water quality. The EPA provided no analysis of historical data collected at sites within the watershed to show that allowing the proposed number of exceedances will not result in the degradation of water quality. As discussed in comment #6, Heal the Bay's data from routine monitoring indicates no exceedances of the E. coli health standard occur during dry weather at 9 reference sites. At a minimum, this TMDL will allow the degradation of water quality at these locations during dry weather. It is likely that this TMDL will allow degradation of water quality at all segments of the freshwater system that are not currently impacted by anthropogenic sources and, it is possible that, since the contribution of natural sources was not established relative to anthropogenic sources, this TMDL will result in water quality degradation at impacted sites as well.

EPA Response: *The antidegradation policy requires that there be no degradation of water quality. This remains in place and is unaffected by the TMDL. The 17 day and 3 day exceedance allowances are driven by the requirements of the Santa Monica Beaches TMDL. The model suggests that there may be exceedances of the instantaneous standards whenever it rains and occasional exceedances of the instantaneous standards during dry weather. The Malibu Creek Bacteria TMDL calls for reductions in bacterial loadings during both dry and wet-weather periods. We do not see how it can be construed that this TMDL allows for increased degradation of water quality because substantial load reductions will be needed to implement these allocations.*.

8. The proposed TMDL contains no margin of safety. In fact, because the 90th percentile rain year was used to derive the allowable number of exceedances (based on the Santa Monica Bay TMDLs), the TMDL will not adequately protect water quality during 90% of all years.

The proposed TMDL sets the allowable number of exceedances based on those allowed in the Santa Monica Bay Bacteria TMDLs for wet and dry weather. The allowable days of exceedances are based on the 90th percentile rain year. Heal the Bay and other stakeholders have repeatedly expressed concern over this approach in our written comments and oral testimony on the Santa Monica Bay TMDLs because using the 90th percentile rain year results in an excessive number of allowable exceedances during 90% of all years. This is because during 90% of all years, the *actual* number of exceedances at the reference location will be less than the *allowable* number of exceedances. Thus, in 90% of the years the TMDL is failing to meet the goal of being as clean as the reference location. Using an example as it applies to the Santa Monica Bay TMDL, during a drought year which has 15 days of wet weather, most beaches would exceed water quality standards rarely if ever. However, the Santa Monica Bay Wet Weather TMDL goal of allowing 19% of all days to exceed based on the reference location, 3 days (19% of 15 days) *should* be allowed to exceed water quality standards. However, the TMDL actually allows 17 days. Thus, unless there is an El Nino type rainfall year, water quality will be allowed to exceed bacteria standards far more frequently than the goal of the TMDL of 19%.

Heal the Bay strongly supports the use of a reference location to determine if exceedances are necessary to account for natural sources, and if so, how many exceedances should be allowed. However, use of the 90th rain year to establish the number of allowable days results in a TMDL with no margin of safety. In fact, the TMDL will fail to adequately protect water quality during 90% of all years.

We recommend that the EPA establish a margin of safety, as required in the Clean Water Act, in this TMDL by using a conservative rain year that is the 20th percentile year or less in the development of the allowable number of exceedances (assuming the necessity for allowable exceedances using appropriate reference locations within the watershed is established).

EPA Response: *The 90th percentile wet year was used to determine the magnitude of bacterial loadings during a particularly wet year, not the allowable bacterial loads. The loading reductions required during this critical wet year (1993) were then applied to the average loadings we expect to see in a more typical year (based on average loadings from 1992 to 1995). This provides a margin of safety to the load reductions being recommended in this TMDL. We do not agree that it would be reasonable or appropriate compare loads based on a wet-year (i.e., 90th percentile). Based on the model results, we can expect exceedances of water quality standards whenever it rains. We believe that the load reductions required under this TMDL will improve water quality and decrease the number of exceedance days. We have acknowledged the limitations associated with use of the reference watershed approach and have proposed special studies to re-evaluate the allowable number of exceedance days.*

9. The EPA must include in the TMDL a list of areas in the watershed where swimming frequently occurs. These areas should be included in the recommended water quality monitoring program to assess compliance with this TMDL.

The EPA recommends monitoring at seven "key compliance points" along Malibu Creek and at the upstream and downstream ends of the listed tributaries. Since the goal of this TMDL is to protect the REC-1 beneficial uses throughout the watershed, Heal the Bay strongly recommends that the EPA include in the TMDL a list of the sites where swimming frequently occurs and specify that monitoring completed for the TMDL also be conducted in these areas.

A partial list of popular swimming locations:

Rock pool along upper Malibu Creek
Malibu Creek State Park (Diving bridge off Crags Road)
Malibu Lagoon
Malibou Lake
Westlake
Sherwood Lake
Lake Lindero
Tapia Park along Malibu Creek

White Oaks Farms on Las Virgenes Creek
Arizona Crossing

EPA Response: *We concur with your recommendations to include monitoring at popular swimming locations. We have included language in the TMDL making such a recommendation. We note that many of the sites you recommend are already HTB sites. Decisions on the sampling locations and frequency of samples require a balancing of resources. EPA can only make recommendations. Ultimately these decisions will be made by the Regional Board along with the stakeholders that are developing the Malibu Creek Watershed Monitoring Program*.

10. An uncertainty analysis of the modeling results must be completed. The margin of safety should be reevaluated based on the results of this uncertainty.

Loads of fecal bacteria from the various sources within the watershed and the load reductions necessary to meet the health standards are based on models. To estimate loads and required load reductions, assumptions upon assumptions were necessarily made in the model. A range of uncertainty is associated with each of these assumptions. The modeling exercise should be expanded to include an uncertainty analysis of the estimated bacteria loads that shows the potential range of uncertainty for each source. This uncertainty analyses should then be carried through the water quality modeling to examine the range of predicted days of exceedances based on the model and the range of necessary load reductions. The margin of safety included in the TMDL should be reevaluated based on the results of the uncertainty analyses. As currently drafted, the modeling report presents load allocations as firm numbers with no discussion about the number of assumptions contained within each allocation and the total uncertainty associated with these estimates. This uncertainty analysis is particularly important since this TMDL does not have an implementation schedule, and therefore, dischargers and other responsible parties will be using the modeled source loading estimates and load allocations as guides for prioritizing and funding mitigation measures.

EPA Response: *The task of evaluating and compiling bacterial source loadings from numerous sources is complicated. Any such effort requires that assumptions and there will always be some uncertainty associated with these assumptions. Rather than try to develop a frame work for explicitly defining and quantifying the uncertainty associated with each assumption, we believe it is more appropriate to describe the assumptions that we used in our source assessment and provide the appropriate citations. We do not believe that it would be a wise use of resources to develop a framework for carrying the uncertainty through the model analysis, nor are we required to do so. On the other hand we do believe that there would be some value in using the model as a tool for sensitivity analysis. We would be happy to provide HTB and any other stakeholders with the model and the input files that were used, so that they could run their own scenarios*.

11. EPA should strongly encourage the RWQCB to develop an implementation plan for this TMDL.

The TMDL does not contain an implementation schedule. Dischargers, municipalities, the Regional Board, and other stakeholders are provided virtually no direction on how to meet the projected load reductions. The only tools provided in the TMDL are the modeling results which, as already discussed, are based on a series of assumptions. To promote compliance with this TMDL, EPA should advise the RWQCB to develop an implementation plan as soon as possible.

EPA Response: *We will encourage the Regional Board to develop an implementation schedule as quickly as possible.*

12. How was the modeling completed for this TMDL peer-reviewed?

Much of this TMDL is based on the results of a modeling effort. Peer-review of the modeling should have been completed and the results of this review presented as supporting documentation for the TMDL. In fact, the EPA and the Regional Boards should establish a peer-review mechanism for models completed for TMDLs. Few stakeholders or regulatory agencies have the in-house expertise to thoroughly review these models, yet significant decisions which have potentially large associated costs will be made based on the results of these models. It is critical that the modeling methodology and assumption are reviewed by qualified experts to ensure quality results, reduce litigation risks and aid implementation.

EPA Response: *The basics of the model are the HSPF which has been extensively peer-reviewed in the scientific literature. The application of this model for the Malibu Creek TMDLs was performed by Tetra Tech under contract to US EPA. Tetra Tech is a leader in the development and application of watershed models such as the one used in this TMDL. Model application and assumptions that went in to the model were based on discussions between Tetra Tech and Regional Board staff. Interim products were shared with the Malibu Creek Watershed Council. The final product was reviewed by Regional Board staff and staff at EPA Region 9. The application of model for the Malibu Creek TMDL has not undergone any formal peer review. We agree that there should be a mechanism to provide the public the assurance that models developed for TMDLs are used appropriately.*

13. The TMDL should address dam releases that occur sporadically within the watershed.

There are several dams located within Malibu Creek watershed. Releases of water from these dams occur periodically. These releases, which are not coordinated or centrally managed, could result in sporadic loads of bacteria into Malibu Creek. This source was not included in the TMDL. We recommend that EPA address these in the TMDL to minimize impacts.

EPA Response: *We do not believe that the model results or the conclusions reached in the TMDL suffer significantly from the omission of an analysis to address sporadic*

bacterial loads associated with the periodic release of dam water. Should this become an issue in the future, the model could be modified to deal with periodic dam releases.

14. We respectively request EPA to hold a hearing regarding this TMDL.

Given the importance of this TMDL to the stakeholders of Malibu Creek watershed and the multitude recreational users throughout the region that routinely visit this unique watershed, we believe a hearing is the appropriate way to allow the public an opportunity to vet issues related to this TMDL.

EPA Response: *We do not believe that a public hearing is necessary or required for this TMDL. The public has been given the opportunity to vet the issues through the public comment period. In addition EPA gave a presentation of the TMDL to the stakeholders involved in the Malibu Creek Watershed Council. EPA has developed this TMDL because the Regional Board failed to meet their Consent Decree data of March 22, 2002. Consequently, EPA is required to establish the TMDL by March 22, 2003.*

In summary, Heal the Bay is concerned and dismayed that EPA would propose this TMDL when it clearly will not ensure the protection of the REC-1 beneficial uses of the Malibu Creek watershed. In particularly, it is unconscionable for the EPA to allow exceedances of the health standards without data analysis that clearly shows that these allowances are necessary. Moreover, if this TMDL is unsuccessful, then Surfrider Beach will remain unhealthy for the thousands of people that swim and surf there year-round.

EPA Response: *The implementation of this TMDL along with the Santa Monica Bay Beaches TMDL will ensure that all water quality standards designed to protect public health will be met and that the REC-1 beneficial use will be protected. EPA has taken the lead in establishing this TMDL. It is up to the Regional Board and the stakeholders to ensure that the TMDL is implemented*.

Please give us a call if you would like to discuss our comments at 310-453-0395.

Sincerely,

Mitzy Taggart, D. Env.	Mark Gold, D. Env.	Steve Fleischli
Staff Scientist	Executive Director	Executive Director
Heal the Bay	Heal the Bay	Santa Monica Baykeeper

cc: John Bishop, Region IV RWQCB