



GAIL FARBER, Director

# COUNTY OF LOS ANGELES

## DEPARTMENT OF PUBLIC WORKS

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May 7, 2012

IN REPLY PLEASE  
REFER TO FILE: **WM-9**

Mr. Samuel Unger, P.E., Executive Officer  
California Regional Water Quality  
Control Board – Los Angeles Region  
320 West 4th Street, Suite 200  
Los Angeles, CA 90013-2343

Attention Mr. Man Voong

Dear Mr. Unger:

### **COMMENT LETTER – BASIN PLAN AMENDMENTS REGARDING REVISIONS TO THE BACTERIA TOTAL MAXIMUM DAILY LOADS**

On behalf of the County of Los Angeles and the Los Angeles County Flood Control District, thank you for the opportunity to comment on the proposed amendment to the Water Quality Control Plan for the Los Angeles Region to revise the Bacteria Total Maximum Daily Loads for the Santa Monica Bay Beaches, Marina del Rey Harbor, Los Angeles Harbor, Ballona Creek, and Malibu Creek. Enclosed are our comments for your review and consideration.

If you have any questions, please contact me at (626) 458-4300 or [ghildeb@dpw.lacounty.gov](mailto:ghildeb@dpw.lacounty.gov) or your staff may contact Ms. Angela George at (626) 458-4325 or [ageorge@dpw.lacounty.gov](mailto:ageorge@dpw.lacounty.gov).

Very truly yours,

GAIL FARBER  
Director of Public Works

GARY HILDEBRAND  
Assistant Deputy Director  
Watershed Management Division

GA:jtz

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Enc.

cc: Chief Executive Office (Dorothea Park)  
County Counsel (Judith Fries)

**COMMENTS OF THE COUNTY OF LOS ANGELES AND THE LOS ANGELES  
COUNTY FLOOD CONTROL DISTRICT ON THE PROPOSED AMENDMENT TO THE  
BASIN PLAN TO REVISE BACTERIA TOTAL MAXIMUM DAILY LOADS FOR  
COASTAL WATERBODIES**

**INTRODUCTION**

The County of Los Angeles (County) and the Los Angeles County Flood Control District (LACFCD) appreciate the opportunity to comment on the proposed amendments to the Basin Plan regarding the re-consideration of Total Maximum Daily Loads (TMDLs) for coastal water-bodies of Santa Monica Bay Beaches, Marina del Rey, Los Angeles Harbor, Ballona Creek, and Malibu Creek. We would like to thank Regional Board staff for their consideration of the 2009 proposal by Jurisdictional Groups in revising the TMDLs. However, we are concerned about some of the proposed revisions as discussed below. Comments A, B, C, H, and L apply to all five TMDLs, while the remaining comments apply to specific TMDLs as indicated there in.

**A. The Rolling Geometric Mean Should Be Calculated Every Four Weeks.**

Regional Board staff has conducted a thorough analysis of two approaches to calculate the geometric mean - rolling versus discrete approach - and arrived at the following conclusion and recommendations:

“A rolling geometric mean may, in some cases, determine a beach does not meet standards when it does. For example, a single very high sample can influence the geometric mean calculation week after week into a period where the water quality is, in fact, meeting standards. Alternatively, a discrete geometric mean can, in some cases, arbitrarily split a period of low water quality such that the geometric mean calculation determines the beach does meet water quality standards when there was a period when it did not. ... In the superior interest of not failing to identify water quality impairment, the rolling geometric calculation is preferred. ... calculate geometric mean weekly using 5 or more samples for rolling six week period.” [Page 36 of Staff Report]

While we are not opposed to the rolling approach, calculating the rolling geometric mean on a weekly basis as proposed by staff is very problematic and should be revised as described below. As stated in the staff report, geometric mean was meant to measure the quality of a water-body long term. Therefore, calculating the geometric mean weekly is not meaningful. More importantly, calculating geometric

mean for a certain week by using data collected over previous six weeks would not reflect the condition of the water-body in that week because about 83% of the data used in the calculation was taken from outside of the week.

We propose the following revision to staff's recommended language for calculating geometric mean:

"For purposes of this TMDL, the geometric means shall be calculated weekly every four weeks as a rolling geometric mean using 5 or more samples, ~~for~~ over six week periods, starting all calculation weeks on Sunday."

This proposed change would make geometric mean calculation and application more meaningful and, at the same time, reasonably addresses staff's and our concerns for the following reasons:

- The rolling approach is still used and provides a two-week overlap between geometric mean calculation periods. Thus, seasonal interdependency and continuity in the calculation are maintained. This would address staff's concern about the arbitrary boundaries between seasons or calculation periods.
- It reduces the false positive conclusion about exceedances, i.e., the conclusion that "a beach does not meet standards when it does" would be minimized.
- It is in line with USEPA's draft criteria approach of 30-90 days duration for geometric mean calculation.

## **B. The Reference System Approach Should Apply to Geometric Means.**

As stated in the TMDLs under this re-consideration and other various Regional Board documents, Regional Board supports the reference system approach as a mechanism of implementing recreational standards in Los Angeles Region:

"[The reference system] approach is used in recognition of the fact that there are natural sources of bacteria that may cause or contribute to exceedances of bacteria objectives and that it is not the intent of Regional Board to require treatment or diversion of natural coastal creeks or to require treatment of natural sources of bacteria.... or to hold a non-reference beach to a higher standard than a reference beach."

According to Appendix B of the draft Staff Report and summarized in the table below, there are about 20-25% exceedances of geometric mean at the reference site (i.e., Leo Carrillo Beach).

<b>Geometric Mean Calculation Method</b>		<b>Exceedance Rates (%)</b>
1	Calendar Month (with no qualifier)	20.83
2	Rolling 30-Day (with 5 samples or greater and daily calculation)	22.65
3	Rolling 30-Day (with no qualifier)	22.65
4	Rolling 30-Day (with 5 samples or greater and sampled day calculation)	25.63
5	Rolling 30-Day (with 4 samples or greater and daily calculation)	23.80
6	Rolling 30-Day (with 4 samples or greater and sampled day calculation)	25.13

These exceedances are very similar to single-sample exceedances for wet-weather, which explains the impact of wet-weather on geometric mean results. Despite these significant exceedances of geometric mean at the reference site, staff continues to recommend allowing no exceedances of geometric mean objectives. This inconsistent application of the reference system approach is not based on science and potentially would require the treatment of non-anthropogenic sources of bacteria.

Given the complex nature of bacteria and, more importantly, the fact that non-anthropogenic sources can cause significant exceedances of the geometric mean (as seen in the above table), staff should re-assess its approach on the implementation of the geometric mean standards. It is unreasonable to hold dischargers to a standard that cannot be met at the reference site. Therefore,

appropriate number of geometric mean exceedances should be allowed based on findings at the reference site.

### **C. The Reference System Approach Should Apply to Single Sample Limits During Summer Dry Weather**

Staff's examination of single sample exceedances at the reference beach (i.e., Leo Carrillo Beach) using data from 2004 to 2010 shows exceedance rates of 22% during wet weather, 10% during winter dry weather, and 10% during summer dry weather. These exceedance rates were used to set allowable exceedance days for wet weather and winter dry weather. On the other hand, staff continues to recommend the no exceedance policy for the summer dry weather. Once again, as with the geometric mean, this is inconsistent with the reference system approach and holds dischargers to a standard that cannot be met at a natural site.

Staff has used two main reasons for not allowing single sample exceedances during summer dry weather, the first being that summer is the period of highest recreational use. The County and the LACFCD recognize that summer is the period when most people use beaches. We also recognize that the high summer time usage is true for all beaches, including those beaches receiving flows from natural or undeveloped watersheds and yet having exceedances as shown for the reference site. Our understanding is that beaches that receive natural sources (such as reference beaches) are not subjected to bacteria objectives despite the level of public usage at those beaches and the number of exceedances observed. Therefore, setting targets for non-reference beaches for summer period beyond what can be attained at the reference site, which also has similar level of public usage during summer, is unjustified.

As a second reason for not allowing exceedances during summer dry weather, staff has asserted that the 10% exceedance rate observed for summer dry "happened during a single year (2006) ... indicating that five out of six years there were no exceedances at Leo Carrillo Beach during summer dry weather." The result of our analysis appears to contradict staff's assertion. Our finding indicates that the summer dry exceedances at Leo Carrillo Beach were not limited to one year, but instead were distributed among several years as shown in the table below.

Year	Single sample exceedance rates during summer dry	
	(# of days)	(%)
2004/05	6	17.15
2005/06	11	31.43
2006/07	0	0
2007/08	2	6.25
2008/09	0	0
2009/10	0	0
2010/11	5	14.30
<b>Overall Exceedance</b>		<b>10.91 %</b>

Based on the above analysis, we request that staff apply the reference system approach consistently throughout all three seasons identified in the TMDLs. Accordingly, a 11% allowable exceedance rate should be used to set waste load allocations during summer dry weather.

Alternatively, staff could adopt USEPA's draft criteria for single sample applications. According to the USEPA, single sample values have never been meant for a not to exceed criteria. To avoid confusion on the application of the single sample standard for regulatory purposes, the USEPA re-named the "single sample maximum (SSM)" criteria as "Statistical Threshold Value", or STV, and clearly stated that the STV can be exceeded up to 25% of the time during a recommended duration of 30-90 days. These 25% STV exceedances are allowed at all times of the year, independent of particular season.

**D. The Revised Interim Waste Load Allocations for Santa Monica Bay TMDL Is Not Appropriate**

As part of the re-opener, staff re-calculated the jurisdictional-based interim allocations for wet weather based on data collected from 2004-2010. The re-calculation resulted in significant reduction in interim waste load allocations for all jurisdictional groups. Whereas jurisdictional groups were previously meeting the 10% and 25% interim targets, the recalculation would bring the jurisdictional groups into non-compliance. The table below compares the original interim targets, the newly estimated exceedances, and the newly recalculated interim targets.

Jurisdictional Group	Wet weather Interim compliance targets (expressed as allowable exceedance days)			
	Original 10% target	Original 25% target	Average actual exceedance*	Newly proposed 10% target
1	221	212	193	174
2	342	324	217	195
3	257	237	149	134
5	29	29	34	31
6	58	57	37	33
7	36	36	32	29

\* calculated based on data from 2004 to 2010.

Comparing the average actual annual exceedance (4th column), with the original 10% target (2nd column) and 25% target (3rd column), all jurisdictional groups (except jurisdiction 5) are already in compliance with the compliance targets. Recalculating the interim targets as proposed (ie. the 5th column) would have the unintended consequence of throwing the jurisdictional groups into noncompliance.

It is our understanding that the reason for recalculating the interim targets is to use available new data from the wave wash instead of older data collected at 50 yards

away from the wave wash. However, the use the newer data disregards the actions dischargers have taken to improve water quality since 2003. If it were not for dischargers actions, the new data from the wave wash very likely would have resulted in an increase in the exceedances or, at least, similar exceedances as the previous locations. This can be illustrated by the data at the reference site (Leo Carrillo Beach), where no actions were taken and the monitoring at the wave wash showed similar exceedance rates for wet weather and an increase during dry weathers compared to the old sampling location at 50 yards away. It is clear that the exceedance reductions observed at the compliance sites is related to actions taken by dischargers.

Therefore, the interim allocations should be re-instated as the original targets which were calculated based on the baseline before 2003. Alternatively, staff could use data collected during 2004-05 storm season, which is represents the first sampling conducted at the re-located sites, to re-calculate the baseline interim allocations.

#### **E. Leo Carrillo Beach Is Not an Appropriate Reference System for Marina del Rey Harbor.**

The use of Leo Carrillo Beach as a reference site for enclosed bays and harbors such as Marina del Rey Harbor is not appropriate. First, beaches at enclosed bays have very different hydro-dynamic characteristics compared to beaches that are open to the ocean. For example, open beaches are characterized by fast and high-energy wave dynamics (thus, high flushing and dilution), whereas enclosed bays typically have less circulation. The limited circulation at enclosed bays results in poor flushing and long hydraulic residence time, which creates an environment much more conducive for bacteria re-growth and persistence than water-bodies open to high-energy waves.

Secondly, natural sources of bacteria at enclosed bays are known to be higher than those at open beaches due to high bird population at enclosed bays. For example, a source identification study conducted for Marina del Rey Harbor in 2007 found that non-human sources account for about 95% of the bacteria sources. The weak water circulation and longer microbial survival/re-growth at enclosed bays further aggravates the contribution of natural sources. Studies conducted at other enclosed bays in California supports this assertion. Given that reference sites are meant to represent natural sources, these distinct water-bodies should have their own reference sites.



In the absence of appropriate reference site for enclosed bays, the logical approach (as stated in the TMDL) would be to use the “natural sources exclusion” approach. However, staff rejected this approach by reasoning that no documentation has been provided to the Regional Board indicating that all anthropogenic sources of bacteria have been controlled, which is a required pre-requisite for the consideration of natural sources exclusion approach. In this regard, we would like to note that all storm drains discharging in to Marina del Rey Harbor have been retrofitted with LFDs to the extent feasible. Also, it is not feasible to control all anthropogenic sources of bacteria. This fact was recognized, for example, by the San Diego Regional Water Quality Control Board in its “Amendment to the Water Quality Control Plan for the San Diego Basin to Incorporate Implementation Provisions for Indicator Bacteria Water Quality Objectives,” Resolution No. R9-2008-0028. That resolution states:

“The requirement to control all sources of anthropogenic indicator bacteria does not mean the complete elimination of all anthropogenic sources of bacteria as this is both impractical as well as impossible.”

If staff continues to reject the use of the natural sources exclusion approach at this time, it should consider using a multiplier to adjust the allowable exceedance days for enclosed water-bodies such as Marina del Rey Harbor. Specifically, the allowable exceedance days for Marina del Rey would be established by multiplying the allowable exceedance days at the Leo Carrillo reference site by a pre-determined multiplier, whose value would be greater than one (1) to account for the unique conditions at enclosed bays and estuaries that tend to lead to higher natural bacteria counts. The value of the multiplier can be approximated based on the findings of the source identification study for Marina del Rey.

Another alternative that may be considered for Marina del Rey would be to calculate the allowable exceedance days based on the results of SCCWRP’s reference beach study, where data from reference sites that have the influence of lagoons can be used. This is consistent with the approach that the Regional Board used for the Santa Clara River Estuary Bacteria TMDL. This approach would lead to exceedance probabilities of 30% for wet weather, 13% for winter dry weather, and 5% for summer dry weather.

#### **F. Ballona Estuary and Malibu Lagoon Standards Should Be Based on Marine Water Data.**

As stated in the respective TMDLs, the recreational beneficial uses for Ballona Estuary and Malibu Lagoon were set based on marine water and, accordingly, marine water bacteriological objectives were used for these two water-bodies. However, the allowable exceedance days for these two water-bodies were set based on exceedance rates at freshwater reference sites. This approach is inappropriate and not scientifically justified. We understand that currently there is no representative reference system for these two water-bodies. However, these are unique water-bodies that are very different from freshwater creeks and should be treated in that manner.

At a minimum, these two water-bodies should be treated in a similar manner as the Santa Clara River Estuary. For the same reasons given in the Santa Clara River Estuary Bacteria TMDL, the data from the San Mateo State Beach and San Onofre State Beach should be used as reference system for Ballona Estuary and Malibu Lagoon. Accordingly, the allowable exceedance rates should be 30% for wet weather and 9% for dry weather. The corresponding exceedance days then would be 23 days for wet weather and 26 days for dry weather.

If staff maintains that Santa Clara River Estuary approach is not appropriate for these two water-bodies, then the Leo Carrillo Beach results should be used. In this case, the allowable exceedance would be 22% (17 days) for wet weather and 10% (29 days) for dry weather.

#### **G. Staff Should Consider Natural Source Exclusion at Malibu Lagoon for Dry Weather**

As part of coordinated monitoring efforts for Malibu Creek bacteria TMDL, water quality data is collected at several sites upstream of SMB MC-02, including station MCW-02 which is approximately 1.25 miles upstream of SMB MC-02. Sampling data from MCW-02 show the bacteria levels upstream were often significantly lower than the bacteria levels at SMB MC-02. In fact, data show that during dry weather, MCW-02 often had no flows or no single sample E. Coli or Fecal Coliform exceedances on or near the dates when SMB-MC-02 downstream showed exceedances. This clearly suggests the bacteria at SMB-MC-02 may be due to sources other than upstream discharges. In May 2011, the US Geological Survey published a study titled "The Distribution of Fecal Indicator Bacteria along the Malibu, California, Coastline" (Izbicki, 2011). This study set out to assess the potential sources of bacteria in Malibu Lagoon and at Surfrider Beach, among other sites. The study

reported that the bacteria in Malibu Lagoon and Surfrider Beach were not found to be associated with anthropogenic evidences such as human specific microbes, bacteroides, and man-man chemicals. The Study concluded that observed FIB may be more likely associated with natural sources such as birds and decomposition of organic matter. Therefore, staff should consider applying natural source exclusion for Malibu Lagoon.

We are also concerned that a required special study to quantify bacterial loading from birds has not been completed. Per the TMDL, the State Department of Parks and Recreation is required to conduct a study to quantify the bacteria loading from birds to Malibu Lagoon. The result of this study was supposed to have been submitted to the Regional Board in 2008 (two years after the effective date of the TMDL) and be used during reconsideration of the TMDL, specifically in assessing the feasibility of applying the natural sources exclusion approach to the Lagoon.

There are a least two reasons why this bird study is important. First, the study is important in order to further understand of the sources of bacteria in Malibu Lagoon itself. The source identification study for bacteria conducted for Marina Del Rey in 2007 indicates that birds can be a significant source of bacteria in an enclosed bay or lagoon. The special study that was required of the State Department of Parks and Recreation would assist the Regional Board and the public in understanding if this is true for Malibu Lagoon also.

Second, the lagoon, when breached, empties into the Pacific Ocean close to Surfrider Beach. This study will have the potential for advancing the Regional Board's knowledge about the sources of bacteria that are impacting Surfrider Beach. Given the emphasis placed on meeting standards at that beach, there is no reason why this study, which will assist in that effort, is not being required.

The Regional Board should require the State Department of Parks and Recreation to complete the study as soon as possible.

## **H. Additional Re-Consideration**

With the continuous evolution of the science behind bacteria and health risks associated with recreational activities, it is important to evaluate these TMDLs every five years. There are still many unanswered questions about bacteria that need to be addressed in the future as the science evolves. Some of the issues that warrant re-opener includes (i) the USEPA's new recreational criteria, slated for November 2012, with the associated implementation guidance to come in November 2013; (ii) the development of site-specific recreational criteria using quantitative microbial risk

assessment (QMRA) tool for beaches impacted by non-POTW discharges; (iii) the epidemiological studies being conducted in southern California for non-point source impacted beaches; and (iv) consideration of natural sources exclusion once anthropogenic sources are addressed.

## **I. Bacteria Indicator for Marine Waters**

USEPA's draft 2012 recreational water quality criteria, released in December 2011, state the following regarding bacteria indicators:

“Not all indicators have a clear relationship to illness levels observed in epidemiological studies. Two microorganisms that have consistently performed well as indicators of illness in epidemiological studies are enterococci in both fresh and marine water and *E. coli* in fresh water.

Accordingly, the USEPA recommended the use of enterococci as a bacterial indicator for marine waters. USEPA's conclusion and recommendation were drawn upon the latest research and science on the link between illness and fecal contamination at recreational beaches. Many studies, including USEPA studies, have found no correlation between other bacteria indicators, such as total coliform and fecal coliform, and health risks, and have cast doubt on the application of these indicators for regulatory purposes.

Despite recent science and USEPA's recommendations, staff continues to use traditional bacteria indicators (total coliform, fecal coliform, enterococcus, and fecal-to-total coliform ratio), which were originally established by the State Department of Public Services under the authority given to it via Assembly Bill (AB) 411. The AB 411 bacteria standard was intended for beach notification or advisory purposes (such as postings, closings, and restrictions) and never was intended to be used for TMDL or permit compliance assessment. Therefore, the continued use of these multiple indicators for TMDLs is inappropriate.

In 2010, the Regional Board removed the fecal coliform indicator from freshwater standard based on USEPA recommendations and epidemiological study findings that enterococcus and *E. coli* were the indicators that most strongly correlate with swimming associated illness in freshwater. The same is true for marine waters, where only enterococcus has shown strong correlation with illness. Therefore, staff should update its bacteria standard as part of this re-opener to reflect enterococcus as the sole bacteria indicator for marine waters, which is consistent with USEPA's draft new criteria.

**J. Los Angeles Harbor: Main Ship Channel**

In a letter submitted to the Regional Board on March 10, 2010, the City of Los Angeles indicated that the Main Ship Channel has been consistently in compliance with the bacteria objective since monitoring started in 2005. Data collected from March 2010 until present also show no exceedances at the Main Ship Channel. For the record, a summary of the data (for station HW-07) is provided in the table below.

Year	Single Sample Exceedance Days	
	Summer Dry	Winter Dry
2005/06	0	0
2006/07	0	0
2007/08	0	0
2008/09	0	0
2009/10	0	0
2010/11	0	0

Therefore, the Main Ship Channel is meeting standards and should be removed from the 303(d) list.

**K. Time Extension for Dry Weather Compliance**

Since the promulgation of the Santa Monica Bay TMDL in 2003, we have completed various implementation actions that have improved beach water quality along Santa Monica Bay. In particular, significant resources have been expended to address dry weather flows by implementing low flow diversions (LFD) and treatment systems. As of April 2012, more than 30 LFDs have been installed and are being operated

along Santa Monica Bay, including three LFDs at Marina del Rey. As a result of these actions, the water quality at the beaches has improved significantly which has been acknowledged by Heal the Bay's annual beach report cards.

Despite all these actions and improvements, however, there still exist exceedances of bacteria objectives in the receiving water during dry weather. We do not believe that these exceedances are caused by MS4 discharges, especially at beaches where storm drain flows were diverted or no storm drain exists. At present, however, neither Regional Board staff nor the regulated community know the sources of the bacteria that are causing the dry weather TMDL exceedances.

Until these sources are known, it is impossible to address them, and thus impossible to reduce dry weather exceedances to zero. The staff report neither identifies the sources of the bacteria that are continuing to cause dry weather exceedances, nor discusses how they could be addressed.

Accordingly, to allow stakeholders to better understand and address (if needed) these uncounted-for sources, the dry weather compliance dates shall be extended to 2015. During this additional time, the regulated community, in collaboration with the Regional Board and research agencies like SCCWRP, could develop a study to assess the causes of these exceedances and, if needed.

#### **L. Definition of Joint Responsibility**

The TMDLs, under the waste load allocation section, provide that responsible jurisdictions and responsible agencies are "jointly responsible" for complying with the waste load allocations. The TMDLS, however, do not define what is meant by "jointly responsible." This has caused significant confusion.

It is our understanding, based on comments made by members of the Regional Board at various Board hearings, that it is not the intent of the Board to make any one jurisdiction responsible for the discharges of other jurisdictions. Instead, it is our understanding that, by referring to "jointly responsible," the Board members intend to convey the requirement that all jurisdictions assigned waste load allocations must have programs to meet those allocations, not just some jurisdictions. Because "jointly responsible" is not defined, however, a single jurisdiction can and has been solely held responsible for the contributions from other jurisdictions. This could discourage a jurisdiction from implementing a program to meet the TMDL due to another jurisdiction will be held responsible and meet the obligation.

We therefore request that the Regional Board clarify the meaning of “jointly responsible” by adding the following language to each waste load allocation section where there is a reference to jointly responsible:

“Jointly responsible” means that the responsible jurisdictions and agencies within a watershed [or sub watershed] are all responsible for implementing programs in their respective jurisdictions to meet the waste load allocations. No jurisdiction or agency shall be individually responsible for meeting the waste load allocations by itself nor shall any jurisdiction or agency be responsible for meeting another jurisdiction’s or agency’s waste load.

#### **M. Miscellaneous Comments**

- a. In Table 3 of the Staff Report for Santa Monica Bay TMDL, the station ID (column 1) and associated station descriptions (columns 2 and 3) do not match and should be corrected.
- b. On page 7 of the revised Basin Plan Amendment (implementation section) for Malibu Creek Bacteria TMDL, January 24, 2009 is presented as the compliance date for the dry weather. This appears to be a typo-error and should be corrected as January 24, 2012, consistent with the schedule given on page 14.