LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS' COMMENTS ON PROPOSED TOTAL MAXIMUM DAILY LOADS FOR NUTRIENTS IN THE MALIBU CREEK WATERSHED

The following are the comments of the County of Los Angeles Department of Public Works (LACDPW) concerning the proposed Total Maximum Daily Loads (TMDLs) for Nutrients in the Malibu Creek Watershed (TMDL document). We acknowledge that U.S. EPA Region 9 (EPA) had to prepare the TMDL document in a very short time frame to meet the requirements of the consent decree. However, we are very concerned that this TMDL ignores uncertainties related to how nutrients support excessive algal growth and associated water quality problems, and how to address nutrients in nonpoint sources such as storm water and urban runoff from developed areas. Therefore, our comments focus on the numeric targets and source assessment/load allocations in the TMDL document.

Numeric Targets

We understand that development of numeric targets for nutrients in relation to eutrophication in water bodies could be a major challenge due to a high degree of variability and complexity of nutrient-algae relationship. However, numeric targets must be set based on scientifically identified acceptable levels to protect beneficial uses of a particular water body.

EPA Response: *The targets established in this TMDL are based on values in EPA guidance that have been supported by the scientific literature and are consistent with background conditions in the watershed*.

We believe that the proposed numeric targets for nutrients during summer months (total nitrogen (N) of 1.0 mg/l and total phosphorus (P) of 0.1 mg/l during the period April 15-November 15) should be revised through scientific investigations due to the following four reasons:

No Consideration of Available Forms of Nutrients for Algal Growth

The TMDL document uses total N and total P rather than forms of N and P available for algal growth. Using total N and total P could lead to the control of N and P loads that do not support algal growth. For example, Dr. G. Fred Lee states in his article *Evaluating Nitrogen and Phosphorus Control in Nutrient TMDLs in Stormwater Management Magazine January-February 2002*, that not all forms of N and P are available to support algal growth. Dr. Lee notes that nitrate and ammonia are typically the available forms of N and that soluble orthophosphate is typically the available form of P to support algal growth. Therefore, we recommend that forms of nutrients available for algal growth be identified and that numeric targets be established for these forms of nutrients instead of total N and total P.

EPA Response: *We are aware that the form of nitrogen and phosphorous may be important, however many studies have indicated that total nitrogen and total*

phosphorous may be better predictors of algal growth than species such as nitrate and phosphate. Furthermore, total nitrogen and phosphorous may be transformed through biological processes, necessitating the focus on controlling the loads of total nitrogen and total phosphorous in the TMDL.

No consideration of Limiting Nutrients for Algal Growth

In the TMDL document, it is unclear which of the two nutrients (N or P) is the limiting nutrient. Such information is significant in the development of an efficient nutrient management program. Implementation strategies must focus on control of algal growth limiting nutrients. Therefore, we recommend that EPA scientifically identify algal growth limiting nutrients and establish numeric targets only on the limiting nutrients.

EPA Response: *A number of nutrient limitation studies have been performed to assess which nutrients are limiting in the creek and the lagoon. These were reviewed and discussed in the TMDL document. EPA found that in some cases nitrogen was limiting and in others phosphorous was limiting. EPA therefore established targets for both total N and total P*.

No Consideration of Other Potential Limiting Factors for Algal Growth

EPA did not consider environmental variables, besides nutrients, that might affect or limit algal growth in water bodies in establishing numeric targets. Such variables might include sunlight intensity, water temperature, flow rate, water depth, and turbidity. We are concerned that some of these could significantly influence algal growth. For example, a study conducted by CH2MHill in the Malibu Creek watershed has demonstrated a positive relationship between sunlight and excess algae, while at the same time demonstrating that the linkage between excess algae and nutrients input in the water body may be extremely weak or non-existent.

Without considering impacts of the non-nutrient factors on algal growth, there is no guarantee that the level of nutrients control proposed in the TMDL document would result in the attainment of the designated beneficial uses of the Malibu Creek Watershed. Therefore, we recommend that nutrient limits be set considering non-nutrient factors.

EPA Response: *EPA has developed targets for N and P that are attainable, and should result in decreased algal abundance. While we acknowledge that there is uncertainty in the relationship between nutrient concentrations and algal biomass, it can not be refuted that algae need N and P to grow. The argument being made here is that there are other factors that may be more easily controlled to limit the amount of algae in the streams. The light and flow regime in the Malibu Creek watershed are part of the existing condition and were taken into consideration in the development of the TMDL. The TMDL may be modified if and when the light and flow conditions change. If based on further studies it is determined that the algae problem can and will be ameliorated via other means,*

the TMDL can be re-opened. We also note that the Regional Board may change these targets if and when they revise the TMDL.

Site-Specific Evaluation of Algal Growth

As noted above, eutrophication in a water body depends not only on the nutrient loads into the water body but also other environmental characteristics. In addition, eutrophication also depends on background levels of nutrients, such as naturally-occurring nutrients and nutrients in sediments. We believe that the nutrient assimilative capacity of a water body should be based on site-specific evaluations considering the water body's eutrophic response to site-specific factors such as environmental variables and background nutrient concentrations. It is noteworthy that several EPA's documents, including its *Protocol for Developing Nutrients Total Maximum Daily Loads*, note the importance and necessity of such a site-specific approach for nutrients TMDLs. Therefore, we recommend that such site-specific evaluation be conducted in conjunction with studies already underway by UCLA, UCSB, and SCCWRP.

EPA Response: *The targets in this TMDL are specific to Malibu Creek Watershed. We did not feel there was sufficient additional information that would allow us to be any more site-specific than that. We are aware of the studies underway. We will encourage the Regional Board to incorporate the findings of these studies if and when they revise the TMDL*.

Source Assessment and Load Allocations

We recognize the EPA's effort to identify all possible source categories of nutrients, including septic systems, irrigation, agricultural runoff, and runoff from open space, and to establish waste load and load allocations for them. We believe it is significant that EPA included various sources of nutrients, identified all possible source categories, and estimated their contributions to the impairment due to nutrients.

However, after reviewing the TMDL document, we believe that major improvements are needed in the source assessment and load allocation elements of the TMDL. These elements do not provide sufficient guidance for implementation of the TMDL. For example, Tables 29 and 30 of the TMDL document state that the summer nutrient loading from residential and commercial areas should be reduced by 90% without specifying the sources and their associated nutrient load reductions within the developed areas. Such a situation would constitute a challenge for municipalities due to the lack of necessary source identification and pollution reduction quantification for efficient reduction of pollution. EPA also acknowledges this deficiency is significant in its Region 9's *Guidance for Developing TMDLs in California,* by stating, "it is important to express load allocations in ways that can be implemented and monitored effectively." *Guidance, p. 6.*

The approach outlined below is a methodology we would like to propose to better develop the TMDLs in ways that would improve the efficiency of TMDL implementation.

First, water quality data and other relevant information would be collected to identify high nutrient loading areas in streams. To accomplish that, we would need to monitor nutrient water quality and flow rates at adequate sampling frequencies and locations, taking into consideration variability of the flow rate and water quality along the stream. We believe that the Watershed-Wide Monitoring Program mentioned in the TMDL document can serve as a framework for such monitoring.

Once the high nutrient loading spots in the watershed are identified, field investigations would be conducted to search for all sources of nutrients such as commercial and residential area, septic systems, wildlife, golf courses, the homeless population, etc. in the tributary areas that drain into the water bodies. After the identification of the potential sources, sampling of storm water, surface water, and groundwater would be conducted at various locations in the tributary areas to verify and quantify the relative contributions of these sources to the elevated nutrient levels.

Loading rates at hot spots in the streams and the estimated contributions from each source location would provide useful information for source analysis and waste load and load allocations. This would allow for the development of efficient site-specific TMDL implementation strategies. This approach was successfully used to identify locations that caused bacterial exceedances in coastal waters and to compute bacterial loading rates at each loading location in the Huntington Beach area in Orange County and we think it can also be applicable to nutrients.

Therefore, we recommend EPA and the Regional Board to collaborate with the stakeholders to identify the best approaches, such as the one presented here, which will provide the dischargers with accurate information of pollution sources and help them attain water quality standards effectively.

EPA Response: *We agree that the Watershed-wide Monitoring Program could provide information to the Regional Board to support its development of implementation measures for the TMDL, and for future iterations of the TMDL. However to our knowledge the Watershed-wide strategy is not focused toward identification of hot spots or toward field investigations to identify sources. We also note that the Huntington Beach example was the product of a multi-million dollar effort. Each monitoring decision is a decision that affects monitoring resources. EPA can make recommendations but the decisions will be made ultimately by the Watershed Council. We encourage the Regional Board and the County to work with the Malibu Creek Watershed Council to ensure that the monitoring program is designed to address the TMDL needs.*

Implementation Recommendations

We have two concerns about Section 7, entitled "Implementation Recommendations." First, as noted above, the numeric targets, source identification, and load allocations of the TMDL are based on incomplete information, and do not form an appropriate basis for implementation decisions.

EPA Response: *We believe the source assessment section of the TMDL and the allocation section provide sufficient guidance for implementing agencies to begin targeting source reduction efforts*.

Second, EPA is not required under either the Clean Water Act or implementing regulations in the Code of Federal Regulations to suggest implementation recommendations. The *Guidance for Development TMDLs in California* cited in the TMDL Document does not require EPA to make implementation recommendations for TMDLs that it promulgates. The State has responsibility for establishing implementation measures through the Basin Plan. *Guidance, p. 16.*

EPA Response: *The recommendations in section 6 were based on information provided by the Regional Board and are intended to provide guidance to the implementing agencies*.

Thus, we respectfully suggest that Section 7 of the TMDL document be deleted. If EPA believes that the recommendations should be contained as an informational item in the TMDL document, it should explicitly indicate that.

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We appreciate the opportunity to make these comments, and wish to thank EPA for providing an opportunity for stakeholders to discuss with the agency some of their concerns. We look forward to working with EPA, the Regional Board, and other stakeholders in developing appropriate and implemental nutrients TMDLs for the Malibu Creek watershed.