Las Virgenes – Triunfo Joint Powers Authority
4232 Las Virgenes Road, Calabasas, CA 91302
818.251.2100

January 25, 2013

Ms. Cindy Lin, D.Env.
U.S. Environmental Protection Agency, Region 9
600 Wilshire Boulevard, Suite 1460
Los Angeles, CA 90017

Sent via e-mail to lin.cindy@epa.gov

Subject: U.S. EPA Malibu Creek and Lagoon Draft Total Maximum Daily Load for Sedimentation and Nutrients to Address Benthic Community Impairments – JPA Review and Comments

Dear Dr. Lin:

On behalf of the Joint Powers Authority (JPA) comprised of Las Virgenes Municipal Water District and Triunfo Sanitation District, we appreciate the opportunity to submit comments on the U.S. Environmental Protection Agency (EPA) draft Total Maximum Daily Load (TMDL) for sedimentation and nutrients to address benthic community impacts in Malibu Creek. While not a party to the lawsuit and Consent Decree that resulted in the requirement to establish this TMDL[1], the JPA nonetheless has a substantial interest in the proposed regulation because of its potential impacts on the recycled water, composting and sanitation services that the JPA provides to approximately 80,000 residents of Agoura Hills, Calabasas, Thousand Oaks, Westlake Village, Oak Park, Hidden Hills and unincorporated areas of Los Angeles and Ventura County within the Malibu Creek watershed.

Due to the extensive concerns with the TMDL as currently proposed, the JPA requests that the EPA petition the court to extend the deadline stipulated in the Consent Decree to provide the necessary time to ensure the adequacy of the TMDL's findings and methods. Alternatively, we propose that the EPA employ a phased TMDL approach to meet the March 24, 2013 deadline stipulated by the Consent Decree. We believe that either approach can fulfill the EPA's obligations under the Consent Decree, while ensuring that the TMDL's targets are supported by adequate science.

Following is a description of the JPA's major concerns with the proposed TMDL.

[1] Heal the Bay et al. v. Browner, No. C98-4825 SBA. (N.D. Cal.).

Lee Renger
Chair, Las Virgenes-Triunfo
Joint Powers Authority
President, Las Virgenes Municipal Water District
Board of Directors

Janna Orkney
Vice Chair, Las Virgenes-Triunfo
Joint Powers Authority
Chair, Triunfo Sanitation District
Board of Directors

1. **The JPA's ratepayers cannot afford another TMDL based on inadequate science.** Comment 1-1

Recycled water in our service area is produced at the JPA's Tapia Water Reclamation Facility (WRF) in compliance with permits issued by the State of California in accordance with the federal Clean Water Act National Pollutant Discharge Elimination System (NPDES) Program. The nutrient limits in our current NPDES permit for the Tapia WRF were established by the EPA in 2003 specifically to reduce algal growth in Malibu Creek and its tributary streams. To date, the JPA has spent over $10 million dollars in new facilities in addition to funding operational requirements to meet these targets. Discharges of *any* effluent from the Tapia WRF have been terminated for seven months of the year, spring through fall, for the last 14 years, aside from rare exceptions when some flow was needed to preserve downstream habitat for endangered steelhead trout. Nutrient levels in Malibu Creek have decreased in response to these efforts to levels that rarely exceed the 2003 TMDL targets, yet algal growth in Malibu Creek remains largely unchanged.

In 2003, the JPA submitted comments on the EPA Nutrient TMDL for Malibu Creek expressing concerns about the science, need, efficacy and cost of the nutrient targets proposed. In particular, we provided substantial scientific evidence that the algal species responsible for nuisance algal growth in Malibu Creek grew in equal amounts both below and above the Tapia WRF outfall, and that other factor(s) appeared to be responsible for nuisance algal growth in Malibu Creek, beyond Tapia WRF's winter-time discharge of recycled water. The final TMDL established by the EPA in 2003 concluded that runoff from urban development above the Tapia WRF was the primary cause of this algal growth, and established nutrient load allocations for non-point sources in the upper watershed on the basis of its nutrient modeling results.

Today, we are told by the EPA in the current draft TMDL that the nutrient targets established in the previous TMDL were not low enough to reduce algal growth to acceptable levels, and that winter-time algal nutrient targets based on earlier science must be reduced approximately eight-fold. In fairness to the JPA's ratepayers and in light of the previous TMDL not having reached its stated objectives, we hope the EPA will understand if we ask: "Will it work this time?" and "How good is the EPA's science behind this proposed TMDL?" Our review of the draft TMDL found ample grounds to conclude that the science behind the current draft is even less certain than its predecessor. The proposed TMDL relies on methods that have been found by their own authors to be inappropriate for the unique characteristics of Malibu Creek.

2. **The implementation of this TMDL will be a severe financial burden to ratepayers, *with no better guarantee of success than its predecessor.*** **Comment 1-2**

If the draft TMDL is right in its finding that the EPA's earlier nutrient targets will not achieve their intended goal, then ineffective TMDL rule-making will have cost the JPA's ratepayers over $10 million dollars without any discernible decrease in algae, the impairment the 2003 Nutrient TMDL was meant to address. The JPA estimates that the nutrient targets proposed in this new TMDL would cost over $160 million dollars to achieve if implemented as end-of-pipe limits on recycled water produced at the Tapia WRF.

To meet the draft TMDL's proposed nutrient targets as end-of-pipe limits would require a complete retrofit of the Tapia WRF, with additional impacts to the Rancho Las Virgenes Composting Facility and the need to construct a second treatment plant to further treat recycled water. The potential costs of these efforts to our ratepayers surely deserves sufficient time to ensure that the science behind the TMDL is fully vetted, providing greater scientific certainty than the previous TMDL in addressing the problem it is intended to address.

Instead, the JPA has been given just over 30 business days to review and comment on what is arguably one of the most technically-complicated and novel TMDLs ever released by the EPA Region 9 staff. Our technical comments on the draft TMDL are substantial, and we could not review some of the TMDL technical appendices before the comment deadline given the number of problems and errors uncovered in the main body of the TMDL document. Our review of the EPA's evidence was further hindered because the EPA could not provide reports[2] and data it relied upon in reaching its conclusions. Key data used to establish the TMDL's proposed targets was unavailable for our review, including data used to establish the original listing impairment, data necessary to fully verify the validity of the TMDL's evaluation of SC-IBI scores in Malibu Creek, and still other data necessary to verify the TMDL's assertion that its reference sites in other coastal streams are truly comparable to natural conditions in Malibu Creek.

3. **The TMDL schedule is unreasonable, both for the EPA and affected stakeholders.** **Comment 1-3**

The time available to produce and review the draft TMDL was insufficient given its inherent technical complexity and the need, driven by a legal deadline, for the EPA to use methods never vetted by either the EPA or the state of California for

[2] The EPA relies on one report attributed to Sikich (2012) cited 22 times in the TMDL, yet that report has not yet been released as of today for public review by either the EPA or the organization EPA says supplied it.

Malibu Creek[3]. The need for sufficient time to validate these methods is acute not only from the perspective of sound science, but also given the magnitude of the TMDL's potential economic consequences for the region's ratepayers, who will ultimately bear the costs for compliance with the new targets.

This is the first benthic macroinvertebrate TMDL ever drafted by EPA Region 9. Its inherent complexity follows from its distinction as the first TMDL in the state to attempt to quantitatively link low aquatic insect scores with potential human stressors. This link would be technically challenging under the best of circumstances, but the EPA's production schedule required completion of the draft TMDL while the state is still attempting to develop the scientific standards necessary to establish the use of benthic macroinvertebrates as biological indicators in freshwater streams. Complicating matters further, Malibu Creek is perhaps the most technically-challenging stream to apply these methods, in that Malibu Creek is not a freshwater stream, being naturally very brackish over its entire length. The state science team developing these methods is currently trying to adapt them for streams as naturally salty as Malibu Creek, but that work is not yet complete. The TMDL is proceeding in advance of these efforts. This is not the science-based, stakeholder approach to TMDL rulemaking that the EPA promised in 2010 when it added this TMDL to the list of items originally covered under the Consent Decree.

The EPA's schedule for establishing this TMDL also precludes the consideration of important efforts by the state to develop policies on the use of benthic macroinvertebrate metrics as indicators of aquatic health. The result of this TMDL, if not substantially changed, would be the Federal Register publication of a TMDL with biological response targets using tools already determined by scientists to be inadequate and inappropriate for use. These same scientists have publicly stated that even a later modification of these particular tools should specifically <u>not</u> be used in Malibu Creek, because its naturally high salt levels[4] put the stream beyond the experience of their models. The technical team has since added high conductivity reference sites and made additional changes to the assessment tool, and we believe they will release their findings shortly after the EPA publishes its findings in the Federal Register.

[3] The TMDL relies on an assessment method developed for freshwater streams, which have never been validated for non-freshwater streams such as Malibu Creek, which is naturally very brackish throughout its length.
[4] See our general and specific technical comments on the ionic strength of Malibu Creek and its ramifications for EPA's assessment methods, specifically the use of the Southern California Index of Biotic Integrity (SoCal IBI) for benthic macroinvertebrates in very brackish streams.

4. The TMDL's science is rushed and seriously flawed. Comment 1-4

This is not a case of a TMDL based on the best available science. Our review reached the same conclusion of the scientists who developed the methods used in the draft TMDL. They cannot be applied to Malibu Creek absent modification(s) to account for the creek's atypically brackish natural character. Specifically, the TMDL relies on the Southern California Index of Biotic Integrity (SC-IBI) to verify the original impairment listing, relate impairment to potential human stressors, and justify the TMDL's proposed nutrient, algae and sediment targets. Further details may be found in the accompanying technical comments, but a short summary of concerns is useful here.

The SC-IBI used in the TMDL compares Malibu Creek's IBI scores to IBI scores from relatively unimpaired freshwater streams in southern California, which were used as reference streams in the TMDL. The TMDL then used the results of this comparison to conclude that a problem exists because scores are lower in Malibu Creek than in these natural reference streams. The error is that very few streams in southern California - or even the state - are as salty as Malibu Creek. None of the Santa Monica Mountain coastal reference streams that the EPA used in the TMDL are as salty as Malibu Creek, nor are any of the reference streams used to develop the SC-IBI as salty as Malibu Creek.

This might not matter if benthic macroinvertebrates were insensitive to salt and ionic strength, but our review and the EPA's own scientific guidance on ionic strength[5] finds that freshwater macroinvertebrates are not only sensitive to the ionic strength of water - its overall salt content - but also to the specific ions responsible for Malibu Creek's salt content. Research published by EPA scientists[6] shows that the ionic strength of Malibu Creek's water and the specific ions responsible for it are sufficient to cause low benthic macroinvertebrates scores in other regions.[7] Still other published, peer-reviewed research shows that the levels of Malibu Creek's major ions such as bicarbonate, sulfate, magnesium and chloride have adverse impacts on benthic macroinvertebrates.[8] There is no reason to expect that Malibu Creek can attain the SC-IBI scores found in other southern California streams with lower salt levels. This is why the

---

[5] http://www.epa.gov/caddis/ssr_ion_int.html

[6] Pond, G. J., M. E. Passmore, F. A. Borsuk, L. Reynolds and C. J. Rose. 2008. Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools. *Journal of the North American Benthological Society*, 27(3): 717-737.

[7] In other EPA regions, benthic macroinvertebrates are used as biological indicators of excessive salt levels from mountaintop coal mining operations. Salt loads in Malibu Creek exceed these levels, yet the TMDL dismisses the creek's ionic strength as not affecting its IBI scores because the evidence for toxicity is limited. But the evidence linking nutrients and algae levels to those scores is even weaker.

[8] Mount, D. R., Gulley, D. D., Hockett, J. R., Garrison, T. D., Evans, J. M. 1997. Statistical models to predict the toxicity of major ions to *Ceriodaphnia dubia, Daphna magna, and Pimephales promelas* (fathead minnows), *Environmental Toxicology and Chemistry*, 16(10): 2009-2019.

authors of that method - who are also on the state's Biological Objectives Technical Team - are working on analytical modifications to extend those methods for use in Malibu Creek. The EPA should wait for these methods in the interest of scientific accuracy.

The JPA's technical comments detail serious problems in other areas of the draft TMDL. Errors in basic geology include the TMDL's finding that Malibu Creek drains Triassic age rock and glacial sediments, which it does not. Errors in basic hydrology include the TMDL's assumption that Malibu Creek today is a perennial stream, which it is not. In these examples, the TMDL authors overlooked important evidence contrary to their assumptions and findings.

Also of concern to the JPA is the draft TMDL's reliance for most of its key findings on data submitted by one of the environmental advocacy groups that was a party to the Consent Decree. Given the emphasis on this data for the analyses, the EPA should verify that the pollutants were analyzed using analytical methods approved by the EPA, State and Regional Boards. Laboratories performing such sample analyses should be certified through the California Department of Public Health Environmental Laboratory Accreditation Program (ELAP). Requirements for this certification include quality control/assurance data in reports, adherence to hold time requirements, completion of chain-of-custody documents and the routine calibration and maintenance of instruments. Reporting and calculations using the data should also conform to approved protocols.

5. **The TMDL is dismissive of the EPA's own guidance and other research on natural geologic impacts on benthic macroinvertebrates in Malibu Creek.**

Comment 1-5

As mentioned previously, an alternative explanation for Malibu Creek's low freshwater insect scores is that Malibu Creek is not a freshwater stream, even in a state of nature. The salt content of Malibu Creek is unusually high even among other streams in the xeric southern regions of the state. This is due, in turn, to unusually large exposures of an equally unusual geologic formation - the Monterey Formation - a petroleum source rock whose hazards to water quality for both human beneficial uses and aquatic life are sufficiently severe to merit their own U.S. Geological Survey website[9].

The EPA is well aware that Malibu Creek is an unusually salty water body, even for a southern California coastal stream. The draft TMDL acknowledges that the level of salt leaching into Malibu Creek is sufficient to maintain brackish

---

[9] U.S. Geological Survey, 2002. Hazardous trace elements in petroleum source rock: The Monterey Formation. Website: http://geomaps.wr.usgs.gov/env/monterey.html.

conditions in the creek year-round, yet its analysis of this condition in Section 7.3 never addresses or even acknowledges the substantial weight of evidence for its natural origin in the watershed's unusual geology. Similarly, the draft TMDL acknowledges that Malibu Creek's salt content "occasionally" exceeds the state's TDS objectives, based on a general rule of thumb for estimating TDS from conductivity. It dismisses without comment, evidence the JPA submitted previously[10] that the draft TMDL's general rule of thumb is known to underestimate TDS in Malibu Creek, and does not offer any rationale for not using the more accurate conversion factor specific for Malibu Creek, which was also provided. Using this more accurate conversion factor quickly shows that Malibu Creek *seldom* meets the state's TDS objective in summer, and often exceeds it in winter.

Regardless of which TDS conversion factor is used, the result is that Malibu Creek is brackish by any standard. In sections following Section 7.3, the draft TMDL appears to agree that this condition is a natural consequence of the watershed's drainage of Monterey Formation rock[11]. However, in other sections[12], it dismisses the creek's high salt content as a potential stressor of aquatic insects, and appears to argue that the creek's unusually high conductivity is due to urban stormwater runoff, stating:

> "As was discussed above, it appears most likely that IBI scores are responding primarily to urbanization and only to a lesser degree, if at all, to conductivity itself. It thus appears that conductivity enters these regressions primarily as a surrogate for urban stormwater input, as was also suggested by Walsh et al. (2001) for studies in Australia."

The draft TMDL ultimately dismisses high conductivity as a primary source of low aquatic insect scores in Malibu Creek, concluding:

> "Sites upstream of high-density development, but within the Modelo [Monterey[13]] formation, exhibit slightly lowered SC-IBI scores, but not as low as scores for sites impacted by urban development."[14]

As detailed in our Technical Comments, the authors of the draft TMDL mistakenly attributed SC-IBI scores at sites "impacted by urban development" as due to urban stormwater runoff, when nearly all of these sites also receive substantial stormwater runoff from the Monterey Formation within these

[10] In our comments on the pre-public release draft TMDL.
[11] Draft TMDL p. 8-16, 8-18.
[12] Draft TMDL p. 8-21.
[13] The draft TMDL throughout refers to local exposures of the Monterey Formation by its earlier Modelo Formation moniker. This reference is inconsistent with current usage in the scientific literature that specifically refers the Modelo Formation to the Monterey Formation.
[14] Draft TMDL p. 9-30.

drainages in addition to groundwater inputs from the Monterey Formation, both upstream and directly beneath these areas.

There is no question that Malibu Creek's high salt content is due to the Monterey Formation in its northern tributaries, and possibly other marine sedimentary rock as well, nor that its high salt levels predate urban development in the watershed[15]. It is a natural, if unusual condition. This is important not just for Malibu Creek's aquatic insects, but for all of its aquatic life; those species intolerant of salt will fare poorly in the creek in comparison with more tolerant species, whether they are benthic macroinvertebrates, diatoms, or fishes. It should not surprise anyone that at the base of the food chain, both Malibu Creek's benthic diatom community and its floating macroalgae is dominated by salt-tolerant species. Nor should it surprise anyone that at the top of the aquatic food chain, Malibu Creek's only native freshwater fish species, the arroyo chub, is very tolerant of salty and high-mineral waters. We do not find the draft TMDL's reasons for discounting similar effects on the creek's aquatic insect and macroinvertebrate community compelling for this reason alone. The EPA's own website warns that impacts on freshwater benthic macroinvertebrates are expected in waters of high ionic strength.

Yet high ionic strength (i.e. high specific conductivity) is only one of seven potential causes for low freshwater insect scores related to the presence of large exposures of the Monterey Formation[16]. The draft TMDL never addresses some of these potential stressors and dismisses others without good reason in its focus on establishing lower nutrient targets. In our technical comments we provide substantial evidence that each of these seven factors are relevant to aquatic insect health in Malibu Creek, in many cases citing EPA's own technical reports and guidance. The causal assessment included in the Linkage Analysis failed to consider these and other potential stressors identified in EPA guidance[17].

In short, due to the Monterey Formation and its impacts on native water quality and aquatic life, Malibu Creek is probably one of the hardest and most challenging places for the EPA to attempt to separate natural from human impacts on freshwater benthic macroinvertebrates. Even the state's biological objectives technical team has acknowledged that Malibu Creek's salt levels are almost unique in the state in comparison to the hundreds of streams where data on benthic macroinvertebrates have also been collected. This team has advised against applying the southern California Index of Biotic Integrity (IBI) to Malibu Creek - the very metric of benthic macroinvertebrate health relied upon in the draft TMDL.

[15] See Section 3 in LVMWD Report No. 2475.00, previously submitted.
[16] See our technical comments for details.
[17] Cormier, S. Norton, S. B., Suter, G., Reed-Judkins, G. Stressor Identification Guidance Document, 2000. U. S. Environmental Protection Agency, Office of Research and Development.

6. The JPA offers its recommendations for TMDL development.

Comment 1-6

The JPA strongly recommends that the EPA take the time necessary to thoroughly vet the findings and conclusions in the draft TMDL, using methods appropriate for Malibu Creek. We understand the legal constraints to establish the TMDL and, accordingly, we ask that the EPA petition the court to extend the Consent Decree deadline for the TMDL so that it can be done correctly, using the right tools and data and in concert with other efforts by the state directly related to the use of benthic macroinvertebrates as indicators of water quality and aquatic habitat in Malibu Creek.

Absent an extension on the Consent Decree deadline, we believe the EPA can improve the draft TMDL's scientific validity as discussed above while meeting the Consent Decree's March 24, 2013 deadline with the use of a phased TMDL. EPA guidance specifically recommends a phased approach to TMDLs where "the use of additional data or data based on better analytical techniques would likely increase the accuracy of the TMDL load calculation," where the state "is using a surrogate to interpret a narrative standard," and where there are uncertain loadings from natural sources[18]. This guidance specifically recommends that phased TMDLs be used for TMDLs that, "for scheduling reasons need to be established despite significant data uncertainty and where the state expects that the loading capacity and allocation scheme will be revised in the near future as additional information is collected,"[19] which is clearly the case here. We ask that the EPA adopt a phased approach for this TMDL, deferring receiving water targets and load allocations for a later phase following the completion of the state's efforts to develop bio-objectives policy and macroinvertebrate assessment methods appropriate to Malibu Creek.

Attached are "Technical Comments" that provide additional recommendations for improving the scientific adequacy of the TMDL.

If you have any questions regarding these comments, please contact me at (818) 251-2122.

Sincerely,

David W. Pedersen

David W. Pedersen, P.E.
Administering Agent General Manager

---

[18] Aug. 2, 2006 memorandum from Benita Best-Wong, Director EPA Assessment and Watershed Protection Division, to EPA regions I-X, clarifying the use of phased TMDLs.
[19] Ibid, p. 3.

U.S. EPA Malibu Creek and Lagoon Draft Total Maximum Daily Load (TMDL) for Sedimentation and Nutrients to Address Benthic Community Impairments

TECHNICAL COMMENTS

A. General Technical Comments

1. We recommend that all calculations be made using the SC-IBI with the new bioassessment scoring tool developed for the state: the California Stream Condition Index (CSCI). Comment 1-G1

2. We recommend that bioassessment reference sites be changed from the coastal reference sites to two Malibu Creek headwaters sites under the influence of the Monterey Formation. Other Santa Monica mountain coastal streams are not representative of Malibu Creek's native ionic strength, nor of its major tributaries other than Cold Creek. Comment 1-G2

3. We recommend that National Park Service and Calabasas Landfill water quality monitoring data be included in a revised calculation of natural background water quality (see attached data). Comment 1-G3

4. We recommend that EPA conduct a full CADDIS level causal assessment with stakeholder participation that includes the CADDIS ionic strength module. Watershed stakeholders have more detailed knowledge of potential stressors affecting streams, and ionic strength is one stressor that was not considered in the draft TMDL. This should be added in the recommendations section. Comment 1-G4

5. TMDL analysis should limit its finding to benthic macroinvertebrate bioassessment sites with year-round flow, per the assumptions of the So Cal IBI. Sites MC1 and MC12 do not have year-round flow. Comment 1-G5

6. TMDL analysis should limit algal percent cover and nutrient water quality assessment to periods of time with flow. Comment 1-G6

7. The TMDL should use benthic macroinvertebrate impairment thresholds specific to the conditions in Malibu Creek watershed, including the influences on water quality from the Monterey/Modelo Formation and other local geologic terrain. This is the approach being used by the state biological objectives benthic macroinvertebrate science team. Comment 1-G7

8. The TMDL should develop algal impairment thresholds specific to the conditions in Malibu Creek watershed, including the influences on water quality from the Monterey/Modelo Formation and other local geologic terrain and very low flow conditions during summer. Comment 1-G8

9. The TMDL should assess algal biomass using ash free dry weight and not by using chlorophyll-a. There are multiple problems with chlorophyll a assessments: chlorophyll can degrade prior to analysis, results are highly variable by method and by laboratory. Comment 1-G9

10. EPA cites the Heal the Bay report Sikich et al. (2012)[1] 22 times in the text of the TMDL, but the report is not available for review by watershed stakeholders because it has not been published. It is expected to be published in 2013. EPA's reliance on this report dictates that it should be available for the affected stakeholders to review. **Comment 1-G10**

[1] Sikich, S. K., Pease, K., Diringer, M., Abramson, M., Gold, M., Luce, S. 2012. *State of the Malibu Creek Watershed Report: Trends in Watershed Health*. Heal the Bay, Santa Monica, CA.

B. Detailed Technical Comments

Note: Page numbers refer to specific pages in the draft TMDL. Comments are also numbered sequentially to assist the EPA in responding to specific comments.

Section 1 – Introduction

Page 1-2

Comment (1): In summarizing their own work, the draft TMDL authors assert that, "This TMDL completed a detailed stressor identification or causal assessment to comprehensively evaluate the critical stressors causing the impairment." We disagree. Our detailed comments below provide substantial evidence that the draft TMDL did NOT comprehensively identify or evaluate critical stressors of the benthic macroinvertebrate community in Malibu Creek. Critical stressors were either not identified at all or were dismissed despite a larger weight of evidence for their importance than the stressors that EPA identified as critical with respect to low IBI scores.

For example, the on-going use of toxic aquatic insect larvacides in Malibu Creek for vector control was not identified as even a potential stressor. Likewise, while the EPA's linkage analysis includes the potential effects of nitrogen and phosphorus on algal growth in Malibu Creek, it overlooked the effect of elevated calcium – which is unusually high in Malibu Creek - on algae growth, documented in EPA's own stressor identification guidance. The TMDL authors also appear unaware of the fact that Malibu Creek is a non-perennial stream over 25% of its length every summer, and use aquatic insect assessment methods that assume permanent flow. This error in turn stems from EPA's reliance on stream flow data from the county gage, which does not register zero flows above the gage because it lies immediately below a major tributary (Cold Creek), and does not register zero flows in the creek below the gage where a major drying zone develops virtually every summer (see photos) in the absence of deliberate, releases of recycled water from Tapia WRF required by the US National Marine Fisheries Service to sustain aquatic habitat for endangered steelhead trout. This basic error in hydrology – overestimating instream flows –violates both the assumption of perennial flow in EPA's macroinvertebrate assessment method and overestimates sediment transport in its sedimentation assessment. More information is provided below in the relevant sections. Comment 1-D1

Comment (2): In the paragraph at the top of the page, the TMDL states that a TMDL is required to account for seasonal variation. But seasonal analyses were not done or presented in sections 6, 7 or 9. Data should be separated between discharge (November 16 – April 14) and non-discharge periods (April 15 – November 15). Had that been done, the data would indicate that nutrient levels are significantly lower during the seven-month, non-discharge period, which coincides with peak spring and summer algal growth in Malibu Creek. Conversely, algal growth declines in winter due to cooler weather, lower sun angles, and shorter days despite higher nutrient levels, as shown in the figures on pages 45-47 of our analysis of the Malibu Creek monitoring data (LVMWD Report #2475.00) which was previously submitted. Comment 1-D2

Page 1-2

Comment (3): Data should be presented seasonally. In the paragraph at the top of the page, the TMDL states that a TMDL is required to account for seasonal variation, but seasonal analyses weren't presented in sections 6, 7 or 9. Not separating nutrient data, especially, into the discharge season (November 17 – April 14) and non-discharge season, gives the erroneous impression that nutrient concentrations can vary greatly at any time of year. By showing the results seasonally, those reviewing the TMDL will see that Tapia Water Reclamation Facility (WRF) increases nutrients only during the discharge season, and that concentrations are significantly lower during the non-discharge season. Without seasonal analysis, the TMDL presents a biased image. Comment 1-D3

Section 2 – Problem Statement

Page 2-4

Comment (4a): The sentence at the bottom of this page should add that ammonia objectives are not exceeded in Malibu Creek.

Page 2-8

Comment (4b): In their conclusion on impairments, the EPA states that "nutrient concentrations exceed targets established in Malibu Creek Nutrient TMDL (USEPA, 2003)[2] at MC-1, especially for nitrate-N and orthophosphate-P (Table 7-7) during both winter and summer periods (Section 7.5)." This is incorrect. Our review of Heal the Bay's nitrate data (NO_3-NO_2) shows that since Tapia WRF's 2005 permit, MC-1 has only exceeded the 1.0 mg/L summer limit once (5/28/2005), and the 8.0 mg/L winter limit once (3/1/2009). The phosphorus limit is exceeded more frequently, but we believe there is a geologic source of elevated phosphorus in the watershed (see comments on this given for Section 5). Comment 1-D4

Page 2-9

Comment (5): The statement that "overall, stations with low median IBI scores are also those stations that are downstream of significant amounts of urban development" is incorrect. Heal the Bay's reference site LV-9 has a median SC-IBI of just 41, and half the scores fail. This site is in the undeveloped headwaters of Las Virgenes Creek within the Monterey / Modelo Formation. The Cheeseboro Creek site Ch-6 has a median score of 54, but had a failing score in one of the seven assessments. This site is also in undeveloped Monterey / Modelo Formation headwaters. Site LV1 from the Malibu Creek Watershed Monitoring Project is immediately upstream of development in the undeveloped headwaters of Las Virgenes Creek and has a median score of 24, but is not a pristine site. However, in terms of water quality, it should be considered reference, as it is just at the outlet of an undisturbed watershed. Los Angeles County site 16 is also in the undeveloped headwaters of Las Virgenes Creek, and has a median score of 19 with two Poor and one Very Poor score. While Heal the Bay has 6 reference sites with IBI data, the EPA omitted the three from within Malibu Creek watershed, two of which are within the Modelo Formation, despite the influence that formation has on water quality. Those formations are not present upstream of the two coastal reference sites the EPA selected. Sites selected to represent natural

[2] http://www.epa.gov/region9/water/tmdl/final.html, scroll down to Malibu Creek Nutrient TMDL, 2003.

conditions should include the full range of the watershed's natural conditions. We request that the EPA base reference condition on the range of SC-IBI scores from all Heal the Bay reference sites, and limit sites to those within Malibu Creek watershed. Natural background water quality condition within the watershed should be based on data from all Heal the Bay, National Park Service and Malibu Creek Watershed Management Program (MCWMP) reference sites in the watershed, not just a subset of the single collection of data provided by Heal the Bay. Comment 1-D5

Section 3 – Numeric Targets

Page 3-1

Comment (6): The TMDL states that "Heal the Bay has collected algal coverage data for 2005-2010." The TMDL should note that algal cover data provided by Heal the Bay is based on single visual observation, and not as reliable as new algal bioassessment percent cover methods developed for SWAMP that rely on objective sampling techniques on 21 transects in a 150m reach with five sampling intervals per transect. Furthermore, Heal the Bay combines benthic filamentous algae with benthic periphyton for their AlgaeMT percents, and combines all floating algae, not just filamentous, in their AlgaeFlt percents (see detailed comments on this for Page 8-3). Benthic cover, in particular, is very difficult to assess visually. Comment 1-D6

Page 3-2

Comment (7): TMDL numeric targets applied in and resulting from the EPA analyses are listed, but several of those used are problematic for the following reasons: Comment 1-D7

A. The Southern California IBI has been shown to be an inaccurate tool, and should not be used in this TMDL.
    - It is an inappropriate metric for use in pools and non-perennial sites in the watershed. The SC-IBI was developed for perennial, wadeable streams. Mazor et al. (2012)[3] found that while the IBI accurately assessed the condition of some nonperennial streams, IBI scores declined with increasing stress other than nonperennial flow. We contend that natural water quality conditions constitute that additional stress, so we expect nonperennial flow to further depress scores.
        - Sites MC-1, MC-12 and many other sites in the watershed are not perennial
        - Parts of site MC-12, and sites R-1 and other sites form deep pools that must be sampled along the edges
    - The SC-IBI has not been validated on low gradient stream reaches, as there were an insufficient number of low gradient reference sites in the south coast xeric region.
    - Use of the SC-IBI was found by the technical team developing methodology for the State's Biological Objectives policy effort, to nearly double the state's miles of impaired streams relative to their O/E. The explanation given to the Stakeholder Advisory Group meeting by the technical team on April 18, 2012, was "this makes sense because unless you're modeling, you're continually confounding natural variation with impairment."

[3] Final Report on Bioassessment in non-perennial streams – report to the State Water Resources Control Board. 2012. Mazor, R., Schiff, K., Ode, P. Stein, E. D. Technical Report 695. Southern California Coastal Water Research Project, Costa Mesa, CA.

This is exceptionally so for Malibu Creek, which lies along an extreme in the natural gradients for conductivity, sulfate, chloride and potentially metals and other substances that could affect macroinvertebrate communities. The problem posed by Malibu Creek watershed was reported by the technical team in their report to the Scientific Advisory Group on April 18, 2012, as follows and according to our notes: "California is diverse. To give the scientific advisory group some background, the Monterey Formation is a world renowned oil-bearing formation high in natural conductivity. Thus, the biology at a site may be unfairly judged as impaired. Although we tried to capture sites like that in the reference pool, there will always be some settings that aren't captured and scoring tools will fail. The Assessment Framework can't model all sites. I think this is a case where that would apply." The point we are making is not that Malibu Creek is so exceptional that it cannot be assessed. Instead, the point we are making is that the Malibu Creek is exceptional enough that it is very difficult to assess. The Technical Team has been adding reference sites and revising the model, and these updates are expected to be applicable in Malibu Creek watershed. We expect the state's tools to work well in this watershed.

B. The SC-O/E was not modeled with appropriate predictor variables and reference sites are unknown but unlikely to have similar conductivity and ionic composition.
   - The EPA used a predictive model developed by a team led by respected stream ecologist, Dr. Chuck Hawkins. Access to models is available upon request through the Western Center for Monitoring and Assessment of Freshwater Ecosystems website. Because of the limited time available to respond with comments to the TMDL, we are not able to fully assess the EPA's use of the model. However, we have been able to identify some potential problems. The website[4] includes a primer, which says "a potential problem in the use of empirical models is to apply models to inappropriate situations." An example is given of using the model to assess a large stream when only small streams were used to build the model. In that case, they say it "would be dangerous to extrapolate beyond the experience of the model." The model does have a test to determine whether the predictor variables used fall within the experience of the model, and flags the results when they do not. The EPA used this flagging system to determine that the predictor variable values for "all of the sites from Malibu Creek watershed and adjoining sites … were within the experience of the model" (page 8-14). The problem is that we do not know whether reference sites used to build the model capture the natural variation exhibited in the Malibu Creek watershed. The EPA selected only physical habitat predictor variables (page 8-13) to assess this watershed and to test model fit. They neglected to include conductivity as a predictor variable, although conductivity and ion concentrations are the predictor variables the state is considering. It may be that the model is "extrapolating beyond the experience of the model" in terms of conductivity. The EPA includes a geologic component, percent sedimentary geology, but this is insufficient in this watershed. We have shown in our report summarizing 35 years of data in the Malibu Creek watershed (LVMWD 2011)[5], that conductivity and ion concentrations draining the Monterey Formation exceed Los Angeles Regional Board

[4] http://www.cnr.usu.edu/wmc/htm/predictive-models/predictive-models-primer

[5] LVMWD. 2011. *Water Quality in the Malibu Creek Watershed, 1971-2010*, Submitted by the Joint Powers Authority of the Las Virgenes Municipal Water District and the Triunfo Sanitation District to the Los Angeles Regional Water Quality Control Board in compliance with Order No. R4-2010-0165.

standards for conductivity, TDS, selenium, sulfate, phosphate and chloride, while drainage from other sedimentary formations do not. Given comments made by the state technical team about the watershed, and given that their original set of reference sites did not have conductivity as high as in Malibu Creek, we suspect the reference set in the O/E model may also not have had reference sites with high conductivity.

C. Benthic algal coverage and biomass metrics may not be appropriate in this watershed.
   - The TMDL states that algal cover targets are derived from Biggs (2000), despite the multiple warnings given by Biggs (2000) that these limits may not be achievable in watersheds where there are even modest amounts of Tertiary marine sedimentary formations because of the natural nutrient enrichment derived from those rocks. LVMWD staff met with EPA at their southern California office in December 2010 to share the report on watershed water quality (LVMWD 2011) which reports these warnings by Biggs (2000). Quoting Biggs: "Indeed only small amounts of these rock types in a catchment can cause proliferations during low flows." The EPA ignored these statements by Biggs (2000) and continues to apply the 30% and 60% cover thresholds.
   - Nutrient spiraling studies support the idea that as nutrient spiraling lengths decrease with low flows, nutrient retention may increase (Powers et al. 2012[6], Dent et al. 2007[7]).
   - The EPA ignores EPA funded research by the Southern California Coastal Water Research Project (SCCWRP) indicating higher percent algal cover and larger natural algal biomass occurring in southern California reference streams (Stein and Yoon 2007)[8]. Table 8 in Stein and Yoon (2007) shows that dry weather percent algal cover ranged from 0 to 100% for benthic algae in southern California reference streams. They distinguished between attached and free-floating macroalgal cover, but when these percent cover values are combined to compare with the EPA's floating/filamentous values, the naturally occurring percentages in the range from 9.0 to 75.6%. The EPA ignored the findings of Stein and Yoon (2007) that algal cover is naturally elevated in southern California reference streams, and instead continues to apply the 30% and 60% cover thresholds. When the EPA find on page 8-36 that "an examination of all of the Heal the Bay mat algal coverage data shows that there is almost no correlation between algal coverage and either inorganic N or inorganic P concentrations" (page 8-36), they ignore similar findings from a study they supported. Stein and Yoon (2007) also found that "Neither chlorophyll-a concentration nor algal percent cover was significantly correlated with any nutrient concentrations."
   - The TMDL applies the 150 mg/m^2 limit derived from the CA NNE framework. This again ignores the findings of Stein and Yoon (2007), which gives average, dry season chlorophyll-a concentration in southern California reference streams as 439.2 mg/m^2 for benthic algae. We used their raw data to produce the following graph of average

[6] Powers, S. M., Johnson, R. A., Stanley, E. H. 2012. Nutrient retention and the problem of hydrologic disconnection in streams and wetlands, *Ecosystems*, 15(3): 435-450.
[7] Dent, C. L., Grimm, N. B., Marti, E., Edmonds, J. W., Henry, J. C., Welter, J. R. 2007. Variability in surface-subsurface hydrologic interactions and implications for nutrient retention in an arid-land stream, *Journal of Geophysical Research*, 112: G04004(1-13).
[8] Stein, E. and V. K. Yoon. 2007. Assessment of Water Quality Concentrations and Loads From Natural Landscapes. Southern California Coastal Water Research Project Report 500. Available at www.sccwrp.org/pub/download/DOCUMENTS/TechnicalReports/500_natural_loading.pdf.

concentrations by stream. The graph below (Figure 1) shows that average algal biomass at more than half the southern California reference streams assessed exceed the 150 mg/m^2 threshold. The threshold is clearly inappropriate for Malibu Creek as a southern California stream. This also ignores the finding of the EPA in Section 10, TMDLs and Allocations, that "The information on natural background concentrations suggests that attaining the NNE target of 150 mg/m^2 chlorophyll-a is likely not feasible in this watershed." (page 10-10). If 150 mg/m^2 is unfeasible, why maintain it as a target?

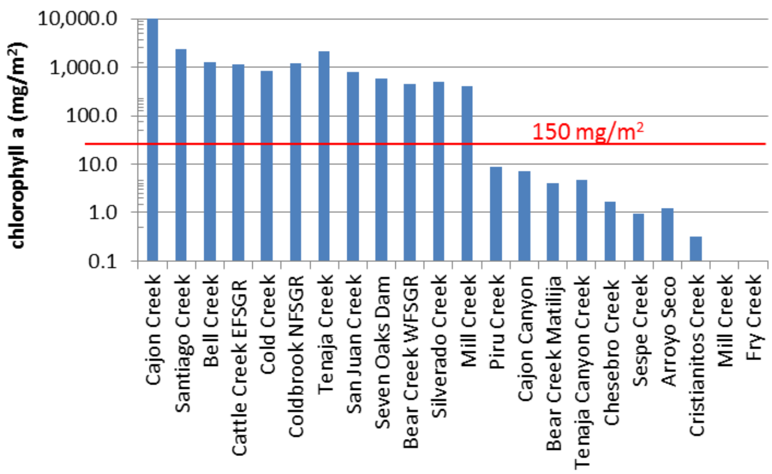


Figure 1. Average chlorophyll-a concentration from southern California reference streams, SCCWRP data (Stein and Yoon 2007).

d. Dissolved oxygen limits are appropriate, but should be applied with caution to avoid very low flow and stagnant, drying pools.

e. Nutrient Concentrations (page 3-3): We believe nutrient limits proposed in this TMDL are unreasonably low, and were derived with inappropriate data and faulty analysis. More detailed comments are provided in the remainder of this document.
    - We believe there is a typo. The first instance of "Lagoon" should say "Creek."

Section 4 – Geographic Information and Analysis

Page 4-4

Comment (8): The TMDL's finding that "Geology in the basin in the Santa Monica Mountains is mostly non-marine in nature, but does include some areas of Eocene and Cretaceous marine sediments." is incorrect. Malibu Creek watershed's geology is 38% Miocene marine sedimentary rock, 36% Miocene volcanic rock, and 6.7% Cretaceous and 1.2% Miocene non-marine sedimentary rock, with the remaining 16.7% consisting of Quaternary sediments derived from these source rocks. Comment 1-D8

Pages 4-4 and 4-5

Comment (9): The TMDL's finding that "Significant exposures of Triassic age marine sediments are found in the area immediately north of the 101 Freeway where the Monterey formation (known locally as the Modelo formation; Figure 4-4) is present at the surface." is incorrect. The Triassic period precedes the presence of terrestrial land masses in this region. Comment 1-D9

Comment (10): Throughout the document: Capitalize the F in "formation" when part of a proper noun. Both words in "Monterey Formation" should be capitalized, as they are in both parts of the name "Malibu Creek." Comment 1-D10

Page 4-5

Comment (11): The TMDL's finding that "Soils in the watershed generally reflect the underlying glacial geology derived from sandstone, shale, or metavolcanic parent material." is incorrect. What is EPA's evidence for glaciers in the watershed? To our knowledge, indeed to almost all geologists familiar with southern California, this area has never experienced glaciers and there is no glacial geology present. Likewise, there are volcanics, but no known metamorphosed volcanics (e.g. metavolcanics). Good resources for investigating the watershed's geology can be found in LVMWD Report No. 2475.00 (2011), previously submitted. Comment 1-D11

Section 5 – Source Assessment

Pages 5-4 to 5-6: Section 5.2.

Comment (12): The TMDL's listing of non-point sources should include a subsection on natural sources. LVMWD (2011) includes a lengthy analysis of the evidence of natural source contributions to water quality from local geology, which we include here by reference. Constituents elevated above Basin Plan standards in the undeveloped northern headwaters include TDS (as converted to conductivity), sulfates, selenium, chloride and phosphate. The northern headwaters are dominated by a depositionally distinct (not materially distinct) subset of the Monterey Formation known as the Modelo Formation. Much is known about the Monterey Formation, because it is California's primary petroleum source rock. The USGS is aware of the potential risks posed by the Monterey Formation to water quality and aquatic life, and has posted a website to alert the public to the potential hazards.[9] The site shows that the Monterey Formation is similar in composition to the Moreno Formation, infamous for its roll in contributing toxic selenium at Kesterson Reservoir. A source of water quality impairment of this renown should not be overlooked by the EPA, which focused almost entirely on the Monterey Formation's impacts on nutrient levels in Malibu Creek. To make it clear that the Modelo Formation locally should be expected to have the same effects on water quality as the Monterey Formation generally, we refer to the Modelo Formation throughout this document as the Monterey/Modelo Formation, or simply the Monterey Formation following the recommendations of geologists who have evaluated both formations in relation to their elemental, mineral and organic composition. The TMDL's use of the term "Modelo Formation" is incorrect and discourages dissemination of the TMDL's findings with respect to the water quality impacts associated with the Monterey Formation, California's most economically important petroleum

[9] U.S. Geological Survey, 2002. Hazardous trace elements in petroleum source rock: The Monterey Formation. Website: http://geomaps.wr.usgs.gov/env/monterey.html. Last accessed 12/19/2012.

source rock. The water quality impacts we have documented from the Monterey Formation in Malibu Creek are the same water quality impacts associated with the Monterey Formation elsewhere in the state, and the EPA should work to highlight this finding, not obscure it unintentionally by referring to the Monterey Formation in Malibu Creek by its earlier name. Comment 1-D12

Section 6 – Flow Data and Analysis

Comment (13): On multiple pages throughout the document beginning on page 6-1, the TMDL erroneously suggests irrigation runoff is a primary source of increased low flows, propagating the outdated and incorrect findings in the NRCS report of 1995. Landscape irrigation runoff is less than 10% of summer base flow, based on isotopic analysis of stream water downstream of urban sections of Las Virgenes Creek during the summer of 2007 and 2008 (Hibbs 2012)[10]. All water supplied by LVMWD is imported from northern California and is delivered via the State Water Project, so it is isotopically distinct from local rain or groundwater. A USGS study conducted in Malibu Lagoon also included an isotopic analysis of Malibu Creek water sampled just upstream of development in the summer of 2010 and found that site to have a very low fraction of imported water (Izbicki, personal communication). Among statements that require correction are the following: Comment 1-D13

- Page 6-1: "Much of this [imported water] is used for landscape irrigation, which subsequently enters the waterways through shallow groundwater flows or runoff into storm drains."
- Page 6-1: "About 3,000 acre-feet of the increased flow is associated with runoff from lawn and home use, and about 500 acre-feet with septic tank seepage (NRCS, 1995)." (page 6-1)
- Page 6-1: "However, as a result of irrigation with imported and reclaimed water, most of the larger tributaries and all of the main reaches from Westlake Lake to Malibu Lagoon generally have flows all year long (NRCS, 1995)."
- Page 6-1: "Extensive use of imported water in the basin has extended flows into the dry season, which, in conjunction with reduced storage in the Lagoon, tends to result in overtopping of the beach during the summer."
- Page 6-4: "… imported water has also contributed to the base flow increase."
- Page 6-10: Extensive use of imported water in the basin has extended flows into the dry season, which, in conjunction with reduced storage in the Lagoon, tends to result in overtopping of the beach during the summer.

We request that the EPA amend this section to remove implications that urban runoff from the upper watershed is not implicated. See Table 4, Figures 1-4 and associated comments, this document, for evidence that the stream dries each summer at MC-1 flows cease.

- Page 8-24: "Malibu Creek, which flows into the Malibu Lagoon, now receives year-round flow due to irrigation water, treated wastewater inputs and other urban related runoff
  - This sentence should be amended to avoid the misinterpretation that flow is reaching Malibu Lagoon year-round. This is incorrect as the USGS gage and our photo monitoring show. See Table 4, Figures 1-4 and associated comments, this document.

[10] Hibbs, B. J., W. Hu., and R. Ridgeway. 2012. Origin of source flows in a watershed at the wildlands-urban interface, Santa Monica Mountains, *Environmental and Engineering Geoscience*, 27(4): pp.

- Page 8-25: "Upstream runoff from residential areas and irrigation is estimated at a rate of 2,500--3,500 acre-ft annually."
- Page 9-6: "… irrigation (which increases base flow levels)…"
- Page 9-19: "Now, as a result of irrigation with imported and reclaimed water, most of the larger tributaries and all of the main reaches from Westlake Lake to Malibu Lagoon generally have flows all year long (NRCS, 1995)."
- Page 9-20: "Moreover, Malibu Lagoon now receives year-round flow due to irrigation water and other urban-related runoff."
    - o This sentence should be deleted. This is incorrect as the USGS gage and our photo monitoring show. See Table 4, Figures 1-4 and associated comments, this document.

Page 6-2

Comment (14): The draft TMDL overlooks obvious differences between the L. A. County flow gage at LVMWD station RSW-13 (same location as the MS4 mass emission monitoring site) and the USGC gage located just above Malibu Lagoon that explain differences in low flows. Specifically, the TMDL says: "Flows at the two gages match fairly well in the winter; however, during the summer period flow at the upstream F-130 gage remains around 1 cfs, while flow at the downstream USGS gage drops to near zero. The difference is presumably due to evaporation and uptake by riparian vegetation, such as the non-native giant reed, *Arundo donax*." Besides overlooking this invasive species impact on benthic macroinvertebrates, the more likely cause of low flows in the lower creek is loss of surface flows to groundwater based on the following evidence: **Comment 1-D14**

- At the upstream gage water flows over a concrete apron with underlying bedrock, forcing water to the surface. The downstream USGS site has an obvious sediment bed of indeterminate depth, but where upstream flows do not reach the surface in dry summer months.
- The Tapia WRF NPDES discharge permit prohibits discharge from April 15 through November 15 with exceptions for operational emergencies, storm events, or low stream flow conditions that require flow augmentation to sustain endangered species. The requirement to augment flow for endangered steelhead has been in effect since 1997 and is triggered when flow drops below 2.5 cfs for a specified series of days (NPDES Permit No. CA0056014 CI# 4760). This ensures that flows will not drop far below 2.5 cfs for any extended periods of time. The release is also operated such that surface water is just evident north of the Cross Creek Road bridge so as not to breach the berm.

Page 6-4

Comment (15): The EPA concludes that "Observed flow data from the long-term gage portrays a significant increase in base flow between the pre-1966 monitoring period and the post-1992 period." This finding is incorrect. Low flows as measured at the Los Angeles County gage are not representative of flow from developed portions of the watershed because of the requirement that Tapia WRF augment certain low flows, as described above. Because of this required discharge, the lowest base flows are not representative of flow in the upper half of Malibu Creek's main stem or upper watershed tributaries. The TMDL's findings in its low flow analysis should be revised to account for required discharge to the lower half of Malibu Creek and the sentences following this statement should be stricken or revised. Average daily flows that were categorized as low flows may be re-categorized as extreme low flows. The

Pre-Post Impact Flow Duration Curves may need to be recalculated with the Tapia WRF discharge, as well as any other minimum flow requirement contributions, removed in order to get a more accurate representation of low flow hydrologic change. Additional potential causes of increased low flows that should be considered by the EPA are:

a. Hibbs (2012) suggests that the likely causes of increased base flows in Las Virgenes Creek are loss of riparian uptake with the removal of riparian vegetation and the deepening of channels below the summer groundwater table.
b. Concrete revetment of streams likely began about 1964, a year before Tapia WRF came online, based on the build dates for parcels immediately adjacent to concrete channels. Channel armoring requires removal of riparian vegetation, resulting in loss of riparian uptake and increase in base flows. Channels may also have been deepened, and may have intersected groundwater tables during this process. These factors were not considered in the TMDL or analysis of flow.
c. Westlake Lake withdraws groundwater and purchases imported water to maintain minimum flow over the dam as required by regulations. This this is also the case for other lakes in the watershed. This factor was not considered in the TMDL or analysis of flow.
d. An exploratory oil well drilled just north of the county Line in upper Las Virgenes Creek produced artesian flow of water and was never capped (LVMWD 1916.3759). This factor was not considered in the TMDL or analysis of flow.

Among statements that need correction are the following:

a. Page 6-4: “Observed flow data from the long-term gage portrays a significant increase in base flow between the pre-1966 monitoring period and the post-1992 period. In part this may be due to agricultural diversions in the earlier period, but imported water has also contributed to the base flow increase.”
b. Page 6-4: “Predevelopment measurements show that the historical base flow during summer was on the order of 0.18 cfs (NRCS, 1995), but by the 1990s the summer base flow had reached about 4 cfs. The NRCS (1995) study estimated that summer runoff from watering lawns and washing driveways in the upper watershed accounted for about 2.4 cfs of the base flows. About 7.4 cfs of runoff is generated, but about two-thirds of that is lost through evapotranspiration (NRCS, 1995).”
c. Page 6-6: “Not only do the median peak flows significantly increase during the post-impact period as expected from the increased development and imperviousness in the watershed, but the median low-flows also increase (+2,310 percent for the 30-day rolling median) as a result of wastewater discharges, use of imported water, and likely reductions in stream diversions.”
d. Page 6-7, Figure 6-6, Table 6-4 “The EFC median low flows by month are shown in Figure 6-6 and reveal a dramatic change associated with use of imported water in the basin.” **Comment 1-D15**

Page 6-4, continued.

Comment (16): The TMDL explains the increase in base flow by saying “In part this may be due to agricultural diversions in the earlier period, but imported water has also contributed to the base flow increase.” While Tapia discharge may have contributed to the increase in flows when it began operation in 1965, sales of recycled water began to decrease the proportion of water discharged since 1972, and regulations have prohibited discharge to the creek for seven months of the year, with limited exception, since 1997. Comment 1-D16

Comment (17): Table 6-2 is entirely misleading and should be deleted. It compares 1931-2010 flows at the LA County gage to the 2007-2010 flows at the USGS gage at Cross Creek. These flows are incomparable because the LA County gage mixes the eras while the USGS gage was only recently installed, and because the two gages have entirely different hyporheic flow: the LA County gage has none since it is all base rock and concrete, and the USGS site at Cross Creek Road has an obvious sediment bed with indeterminate depth, but where upstream flows do not reach the surface in dry summer months. To give a fair comparison, flow at the upstream station should be given in two separate columns – one for the pre-2007 period, and one for the 2007-2010 period for the purpose of comparing flow at the gages. Comment 1-D17

Page 6-4 to 6-9

Comment (18): The IHA Change Analysis ignores all the additional contributions to increased base flow listed above. Comment 1-D18

Page 6-6

Comment (19): Table 6-3 should include footnotes to include recognition of the sources of increased minimum flow, number of zero flow days, and number of low pulses as listed above. Comment 1-D19

Page 6-7

Comment (20): The extreme low threshold used in the TMDL's IHA analysis is incorrect. Specifically, the TMDL sets the threshold for extreme low flows at 0 cfs on the grounds that "There is a dramatic change in extreme low flow frequency: In the pre-impact period the median number of days with zero flow was four per year, whereas none occur in the post-impact period. This change may decrease the ability of the system to purge invasive species." (Page 6-8). To accurately assess the change in low flow, two changes should be made: flows should be recalculated with minimum flows required to protect endangered fishes removed, and the threshold should be increased to something more representative of actual low flow, such as the second standard deviation below the mean. Secondly, there are many, lengthy reaches in Malibu Creek which dry up nearly every summer, and these dry stretches have not halted the spread of invasive species. A revised analysis may show that without required minimum flow requirements, there may be a median of 4 days per year with no flow. Comment 1-D20

Page 6-10

Comment (21): The TMDL says that "Extensive use of imported water in the basin has extended flows into the dry season, which, in conjunction with reduced storage in the Lagoon, tends to result in overtopping of the beach during the summer. To prevent flooding, mechanical breaching of the beach during summer has been used." LVMWD staff have analyzed the relationship between flow and berm status (open or closed) and found that the berm does not close until flow drops below about 10 cfs. Los Angeles County stopped breaching the berm mechanically over a decade ago. The EPA is encouraged to look into illicit breaching of the berm, unrelated to imported water use in the watershed. Comment 1-D21

Section 7 – Water Quality Data and Analysis

Pages 7-1 through 7-24

Comment (22): We object that while conductivity is included, the TMDL omits data and analysis of data for Ionic Strength. We have communicated to the EPA on numerous occasions, both in person and by email that we believe a primary stressor affecting macroinvertebrate communities in the Malibu Creek watershed is high concentrations of ions. This TMDL is inadequate without that analysis. See our comments for TMDL pages 9-16 through 9-18. **Comment 1-D22**

7.1 Sources of Data

Page 7-1

Comment (23): Reference sites selected by the EPA are inadequate. The TMDL includes this explanation for reference site selection:

> *"Consistent with the discussion in Luce (2003), site SC-14 on Solstice Creek and LCH-18 on Lachusa Creek were selected as the most appropriate reference sites for the Malibu main stem. These sites are at similar elevation (but slightly lower stream order), but have few or no impacts due to development. Luce also treated the Arroyo Sequit station (AS-19) as a potential reference site; however, this site is subject to some development impacts including roads, equestrian uses, and at least one septic system upstream of the sampling station. Therefore, it is not treated as a primary reference site in this assessment."*

The EPA selected two Heal the Bay bioassessment reference sites from nearby coastal watersheds and ignored three of Heal the Bay's bioassessment reference sites within the watershed. These are sites 3 (Upper Cold Creek), 6 (Cheeseboro Creek) and 9 (Las Virgenes Creek). Heal the Bay collects or has collected monthly water quality samples at these sites, as well as their reference sites 8 (Palo Comado), and 10 (Carlisle Creek), all of which should be referred to for natural background water quality. Sites 6 and 9 are in the Monterey/Modelo Formation headwaters, which drain to Malibu Creek and should both be included in all analyses and figures. All of these were used as reference by Luce (2003). The omission of Monterey Formation sites is especially negligent, because we have discussed with the EPA the likely stress to macroinvertebrate populations posed by water quality draining the Monterey Formation.

The table below (Table 1) shows all of Luce's (2003) reference sites, by creek, dominant upstream geology, median sulfate concentration (at the nearest site, which is named in parentheses), and maximum orthophosphate phosphorus concentration. For comparison, the two reference sites selected by the EPA are in **bold**. The EPA selection excludes two reference sites within the Modelo/Monterey Formation, despite our early requests to take Modelo/Monterey Formation influences into account. The EPA also excludes reference sites within Malibu Creek watershed with sulfate concentrations similar to those in Malibu Creek (median 591 mg/L, but with a maximum of 2,050 mg/L). Heal the Bay's maximum orthophosphate concentrations (mg/L) are also shown below, converted from their PO4-HPO4 values to PO4-P using atomic weights. Note that EPA selected two sites with among the lowest natural background phosphate levels (final column). The table shows that the EPA reference sites do not include Monterey Formation exposures, nor do they have comparable sulfate or phosphate concentrations to Malibu Creek's. Comment 1-D23

Table 1. Reference sites used by Luce (2003) and EPA (bold) with both Luce's and EPA's site names are shown with geologic and chemical values for comparison. Malibu Creek has Monterey Formation drainage, a sulfate median of 591 mg/L, and a median summertime PO4-P concentration since 1999 of 0.17mg/L and a maximum of 1.0.

Site	Creek	Geology	Median IBI	Sulfate median	Max PO4-P
R3=CC3	Upper Cold Creek	Mixed	78	90 (J_UColdCrk)	0.16
R6=Ch6	Cheeseboro	M Fm	54	1,550 (Ches)	0.26
R9=LV9	Upper Las Virgenes	M Fm	41	1,238 (S-ULasVir)	0.32
R14=SC14	Solstice	Mixed	67	312 (S-SolsCrk)	0.11
R18=Lc18	Lachusa	Mixed	56	No data	0.15
R19=As19	Arroyo Sequit	Mixed	70	162.3 (J-ArrSeq)	0.09

Comment (24): The EPA's selection of reference sites also omits with no justification those submitted from other agencies. Los Angeles County and the MCWMP also collected benthic macroinvertebrate data from reference sites within the watershed. The Malibu Creek Watershed Monitoring Project site LV-1 in upper Las Virgenes Creek is minimally developed and could have been used as a reference site, as could site 16 of the Los Angeles County MS4 tributary monitoring program. Data for these sites were submitted to the EPA in September 2011 and should have been used to provide an accurate and complete picture of reference conditions in the Malibu Creek watershed. Additional monitoring sites that could have been included as reference sites for benthic macroinvertebrates include the following table (Table 2).

Comment 1-D24

Table 2. Possible additional reference sites.

Site	**Creek**	**Geology**	**Median IBI**	**Sulfate median**	**Max PO4-P**
MCWMP LV1	Las Virgenes	M Fm	24	1,238 (S_ULasVir)	0.14 (S_ULasVir)
LA Co 16	Las Virgenes	M Fm	19	1,238 (S_ULasVir)	0.14 (S_ULasVir)

Page 7-2

Comment (25): Other National Park Service (NPS) water quality data were available to the EPA, but were not included in TMDL analyses. These data were prominent in LVMWD's report on Malibu Creek water quality (2011), which used the data to assess natural background concentrations, along with data from Cheseboro Creek collected by the Calabasas Landfill (being sent with this submission). The NPS data are particularly informative because of the many sites in undeveloped headwaters. While this data set does not include IBI scores, it is particularly well suited to determining natural background water quality for nutrients and conductivity, and also has useful data on sulfate, chloride, fluoride and selenium results. We have the NPS data from their first 10 monitoring sets, which were used in the analyses for LVMWD (2011), and which we are submitting with these comments. We encourage the EPA to contact the NPS Santa Monica Mountains National Recreation Area to acquire the more recent data. Comment 1-D25

Pages 7-2 through 7-7

Comment (26): The TMDL's analysis and findings on dissolved oxygen have several major errors. Of the 117 samples at MC-1, Table 7-1 shows that the average was 10.90 mg/L dissolved oxygen, but the minimum was 2.81 mg/L. Our data from our NPDES monitoring results show that MC-1 dries up completely each summer, and it appears that Heal the Bay continues to sample it as long as there is water. We expect that stagnant pools of water will have low dissolved oxygen. Our analysis of Heal the Bay's data for this site showed that flow was not measured on the 14 dates with DO less than 7.0 mg/L: August and September 1999, August through October 2000, August and October 2004, September and October 2008, and June through September 2009. The USGS gage at that site shows there was no flow for 120 days in 2008 (7/16-11/5/2008 & 11/15-21/2008), and 134 days without flow in 2009 (6/28-11/21/2009 & 10/22-11/18/2009). The gage was only in operation from late 2007 though this year, so there is no data for the earlier dissolved oxygen excursions. However, we do have photos for some of those time periods (Figures 2-5). The photo from July 8, 2004 shows water ponded behind the Arizona crossing, before it was replaced by a bridge. The photo from July 26, 2007 shows the very small stagnant puddle at the site. Heal the Bay's DO measurement at this site on July 12, 2009 was 5.5 mg/L dissolved oxygen, and on August 2 2009 was 3.8 mg/L. Low DO should be expected in these small pools as the creek dries at this site. Also note the white surface of the dry creek bed, due to precipitation of Malibu Creek's unusually salty water. This is significant for aquatic life as the creek dries, because drying in these sections raises the ionic strength above the already high levels occurring during continuous flow. Furthermore, dissolved oxygen values from non-perennial sites as they become isolated, stagnant pools as they dry up should not be used for the purposes of assessing stream conditions for regulatory purposes and should be removed from the TMDL analysis. The analysis should be redone by removing dissolved oxygen data from drying pools, which experience low DO as the creek's aquatic life crowds into low flow refugia and consumes available oxygen. The density of invasive crayfish – yet another invasive species overlooked in the TMDL – can reach over a dozen individuals per square meter in these refugia, virtually blanketing the bottom of some pools. The creek's freshwater clams also experience high mortality during these periods of prolonged drying. **Comment 1-D26**

Figure 2. MC-1, July 8, 2004

Figure 4. MC-1, July 26, 2007

Figure 3. MC-1, October 20, 2008

Figure 5. MC-1, July 24, 2009

Page 7-2

Comment (28): The TMDL states that "samples from Malibu Creek main stem generally meet [dissolved oxygen] criteria, but not all the time." The EPA's 2003 Nutrient TMDL for Malibu Creek analyzed Tapia WRF monitoring stations and showed (EPA 2003, Table 5) not only the minimum, but the count of measurements below the 5 mg/l threshold. That table found no excursions below the threshold, except for at site R9, where water stands in stagnant pools in the summer before drying up. That TMDL concluded "There is no demonstration that algae in these reaches is affecting dissolved oxygen concentration." The data presented in this 2012 draft TMDL do not convincingly show that dissolved oxygen targets are not being met. **Comment 1-D28**

Page 7-3

Comment (29): Table 7-1 shows that the minimum dissolved oxygen concentration at MC-12 is 2.6 mg/L. No other agency samples at that site, a popular swimming hole in Malibu Creek State Park that reduces to very low flows in the summer and dries up at the downstream end. The upstream end is inaccessible so it is unknown whether there is continuous year-round flow into the pool. Our analysis of Heal the Bay data from that location shows that of 66 measurements, eight dropped below the 7.0 mg/L threshold. Of these, four include comments in the "flow type" field indicating low flows ("Intermittent" and "trickle" where "intermittent" is between "none" and "trickle" on the field sheet continuum from "none" to "heavy"). Again, we expect that stagnant pools of water will have low dissolved oxygen. One excursion also occurred two days after a rain event, so may have experienced low dissolved oxygen with higher turbidity (6/7/2009). If these are removed, only 3 excursions below the 7.0 mg/L threshold remain, with the lowest dissolved oxygen concentration of 4.2 mg/L. Comment 1-D29

Comment (30): Table 7-1 also shows that the minimum dissolved oxygen concentration at MC-15, at the Los Angeles County gage site, is 2.8 mg/L. LVMWD monitors site RSW-MC013D at this same location. Of the 192 measurements taken at this site by LVMWD beginning in 2000, the minimum concentration was 5.0 mg/L with only five other samples at less than 7.0 mg/L, ranging from 6.2-6.7 mg/L. Heal the Bay has only sampled at site MC-15 since 2008, so have much less data and few excursions below the 7.0 mg/L threshold. Because LVMWD data are collected for regulatory purposes, exceptionally reliable instruments are used, and we assume these data are more reliable. The graph below (Figure 6) compares LVMWD data with Heal the Bay's. We suggest using a larger set of data than are available from only Heal the Bay at this site. Comment 1-D30

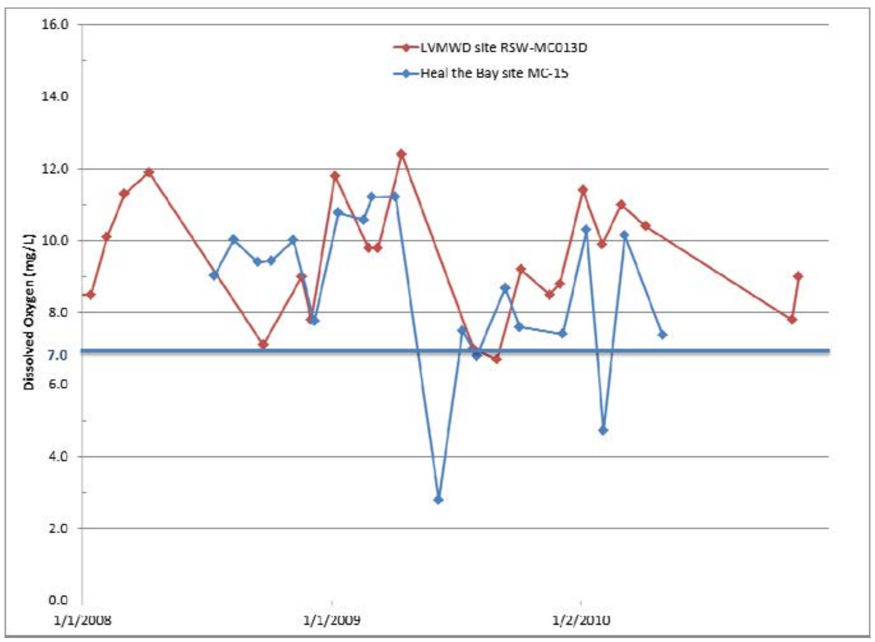


Figure 6. Comparison of dissolved oxygen data at site MC-15 by two agencies.

Comment (31). Table 7-1 also omits dissolved oxygen data from other potential reference sites. The TMDL states only that "The SPWN criterion of 7 mg/L and the COLD criterion of 6 mg/L or better are met in the reference sites, but not always in the main stem." Table 3, below, corrects this finding, showing that dissolved oxygen criteria are not well met at the *majority* of potential reference sites. Thirteen of the nineteen potential water quality reference sites in the watershed, together with Heal the Bay's coastal sites, have a minimum dissolved oxygen concentration below the 7.0 mg/L threshold. The TMDL's Table 7-2 shows that dissolved oxygen concentrations at LV-9, which is in an undeveloped headwater and should be included as a reference site, drop below the 7.0 mg/L threshold 80% of the time. The 7.0 mg/L standard applies to cold water fish, which cannot reach that site, but even the 5 mg/L warm water threshold is not met 38% of the time. Comment 1-D31

Table 3. Dissolved oxygen concentrations at potential reference sites.

Creek	Agency	Site	Min (mg/L)	Avg (mg/L)	Max (mg/L)	Count
Arroyo Sequit	HtB	19	5.4	9.5	15.1	68
Arroyo Sequit	NPS	J_ARRSEQ	5.5	9.1	10.8	10
Big Sycamore	NPS	S_BIGSYC	4.7	7.5	10.8	9
Cheeseboro	NPS	J_CHEESEBRO	12.9	12.9	12.9	1
Cold	HtB	3	5.0	9.1	12.5	110
Cold	MCWMP	CC	4.4	7.4	9.4	27
Cold	NPS	J_UCOLDCRK	8.0	9.1	10.6	7
Lachusa	HtB	18	7.1	9.9	13.3	110
Las Virgenes	HtB	9	2.9	5.4	9.1	30
Las Virgenes	NPS	J_EFLASVIR	0.2	3.9	6.5	7
Las Virgenes	MCWMP	LV1	4.8	8.8	16.5	31
Las Virgenes	Ventura	MCW_8b	3.4	6.6	13.8	51
Las Virgenes	NPS	S_ULASVIR	1.9	6.9	9.7	7
Palo Comado	HtB	8	4.0	7.3	8.7	10
Ramirez	NPS	R1_RAMICYN	7.7	9.2	10.2	7
Solstice	HtB	14	7.1	9.3	16.2	132
Solstice	NPS	R1_SOLSCRK	8.4	9.7	11.0	7
Solstice	NPS	S_SOLSCRK	6.7	8.1	9.4	10
Trancas	NPS	R1_WFTRANCAS	5.6	8.4	11.0	7

Comment (32): The dissolved oxygen analysis also ignores the non-perennial nature of many sites along Malibu Creek. Lake (2003)[11] states that "As streams dry and the surface water shrinks to unshaded pools, the build-up of nutrients, high temperatures and solar radiation can precipitate blooms of algae," which may then result in large diurnal dissolved oxygen concentrations. Malibu Creek becomes a string of isolated pools in the summer, or pools with trickles of water flowing between them. This hydrologic characteristic naturally shortens nutrient spiraling lengths, allowing for increasing nutrient concentrations and increasing biomass in pools. This factor is independent of both native and non-native nutrient inputs. **Comment 1-D32**

Comment (33): USGS data indicates that, while there may be water at the site MC-1, there are long periods without flow. The USGS has operated a gage at that site since December 2007 (Table 4). The gage shows that flow stops and the site becomes an isolated pool in the summer. Intermittent photo monitoring from 2004 through 2010 shows that the site becomes an isolated pool without surface inflow or outflow every summer during the gage period of record, and that it went nearly dry in 2004, 2008, 2010, and completely dry in 2007 (<8/20 – rain 9/21) and 2009 (7/24-10/14 rain event). Google Earth historical imagery shows it completely dry 12/24/2004, 8/22/2002, 9/6/1990, and 7/17/1989.

Comment 1-D33

[11] Lake, P. S. 2003. Ecological effects of perturbation by drought in flowing waters, *Freshwater Ecology*, 48(7): 1161-1172. http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2427.2003.01086.x/full

Table 4. USGS gage records of zero flow conditions.

Year	Zero flow	Days without flow
2008	7/16-11/5/2008 & 11/15-21/2008	120
2009	6/28-11/21/2009 & 10/22-11/18/2009	134
2010	7/15-10/5/2010 & 10/12-19/2010	91
2011	8/25-10/4/2011, 10/14-21/2011 & 10/24-11/4/2011	62

Page 7-6

Comment (34): The TMDL refers to continuous dissolved oxygen measured in pools by the Resource Conservation District. LVMWD collaborated with the RCD on this effort by installing a probe in Tunnel Pool in 2010. Tunnel Pool dropped below 7.0 mg/L dissolved oxygen only 4.5% of the time; average concentration was 8.3 mg/L. Tunnel Pool received constant flow all summer. Minimum daily dissolved oxygen concentrations of 6.2-6.94 were observed 7/15-7/20/2010, and minimum concentrations of 3.34-6.79 mg/L were observed 8/1-8/12/2010. Four other nights in August dipped below 7.0 to between 6.09 and 6.90. Comment 1-D34

Pages 7-6 to 7-7

Comment (35): The Resource Conservation District's 24-hour dissolved oxygen sampling of steelhead trout pools in 2010 needs to be interpreted with caution. LVMWD staff worked with RCD staff on sonde deployment and calibration in 2010. Besides Start, Lunch and Tunnel Pools, Mott Rd Pool is the fourth of the four Malibu Creek pools that measured continuously that summer. Mott Rd Pool is upstream of Tapia WRF within Malibu Creek State Park. Lunch, Tunnel and Mott Rd pools have continuous surface flow in and out all summer, while Start Pool dries up at the downstream end, and may become isolated pool in summer. Lunch and Tunnel Pools showed similar dissolved oxygen patterns where a minority of readings in a 24-hour period fell below 7.0 mg/L and many days stayed above 7.0 mg/L. Mott Rd Pool had periods where dissolved oxygen concentrations remained below 7.0 for full 24-hour periods. Start Pool may be an exception because as it becomes an isolated pool without fresh flows during the summer. The Steelhead TAC, which LVMWD participates in, has not been able to figure it out the many complex issues at that pool. The Start Pool low DO is exceptional even among Malibu Creek pools and may result from a large number of site specific, localized conditions. Comment 1-D35

7.3 Conductivity and Dissolved Solids Analyses (Page 7-7 to 7-8)

Page 7-8

Comment (36): The EPA uses a "rule of thumb" conversion factor of 0.67 to convert TDS (mg/L) to conductivity (µS/cm) resulting in a 2,985µS/cm standard, rather than the empirical relationship developed for this watershed and communicated in our report *Water Quality in Malibu Creek 1971-2010* (LVMWD 2011). Our conversion based on local empirical data sets that threshold at 2,489 to 2,560 µS/cm. The relationship we found for 241 TDS-SC data pairs throughout the watershed is that TDS=0.91*(SC) – 308, or TDS=0.79 (SC) when the y-intercept is set at zero. We have recently recalculated this relationship using only data pairs from Malibu Creek proper. Linear regression results on those 197 data pairs resulted in the equation TDS=0.88 (SC) – 280, or TDS=0.75 (SC) if forced through the origin.

Our more accurate site-specific conversions result in a Basin Plan criteria of 2,489 or 2,528 µS/cm for the watershed and 2,558 or 2,560 µS/cm for Malibu Creek, depending on whether the y-intercept is dictated by the trend in the data or is forced through the origin. All of these conversions result in a lower conductivity threshold for impairment according to the Basin Plan TDS standard that the EPA's conversion. This is an important point, because using the EPA's conversion Malibu Creek does not generally exceed the standard, while using the more accurate watershed-specific conversion, Malibu Creek does not generally meet the standard. Malibu Creek watershed has exceptional, geologically-derived water quality, and deserves watershed-based standards and not "rule of thumb" approaches.

Comment 1-D36

Page 7-7

Comment (37): Table 7-3 includes some very obvious outliers among the minima and maxima shown. We encountered very few of these when we analyzed Heal the Bay's data, and we contacted the Stream Team lead about them and were given corrections where field sheet entries contradicted the database entries. Before including outliers in its analysis, the EPA should verify that it reviewed the field sheets for these outliers for data entry errors. If it did, it should say so, including listing those found in error.

Comment 1-D37

7.5 Nutrients Data Analyses (pages 7-13 to 7-24)

Comment (38): The TMDL did not make use of all available data in its nutrient analyses, omitting without justification data from both Tapia WRF receiving water monitoring and from the National Park Service. Comment 1-D38

Comment (39): The TMDL's nutrient analysis underestimates the native nutrient loads because its nutrient data are based on methods that do not measure inorganic nitrogen from geologic sources. This is a significant oversight because the Monterey Formation's nitrogen content consists primarily of organic forms, which in turn is due to its extremely high biogenic fraction. This is shown in Fig. 2 on page 76 in our compilation of data on local Monterey Formation rock samples in LVMWD report No. 2475.00 by comparing TKN values with those for nitrate N from the same samples. We previously submitted this report, but it appears that the TMDL authors overlooked this finding, which is not apparent in the analyses presented in the TMDL that rely solely on nitrate data. Comment 1-D39

Comment (40): The TMDL also completely neglects the enrichment of Malibu Creek of calcium, which is a major cation in the creek due to drainage from the Monterey Formation, as demonstrated in Fig. 10 on p. 81 of LVMWD report No. 2475.00, previously submitted. In omitting this information, the TMDL neglects to mention EPA guidance on assessing the impacts of high ionic strength that specifically notes that the growth of *Cladophora glomerata,* the species responsible for most surface algal matting in Malibu Creek, is enhanced in waters with high calcium levels, and also that high ionic strength enhances the growth of halophilic diatoms, which grow as benthic algal mats. Over 25% of the creek's diatom species are halophilic based on diatom surveys required under our NPDES permit monitoring, but which apparently were not analyzed by the TMDL despite their importance in assessing the role of ionic strength and major ion composition as known causes of excessive diatom and macroalgae growth according to EPA's own guidance on assessing ionic strength. Our surveys also show that Malibu Creek's diatom community includes species capable of fixing atmospheric nitrogen via symbiotic association with nitrogen-fixing bacteria. This natural nitrogen source was also overlooked in the TMDL. Comment 1-D40

Comment (41): Nutrient data analyses should have been analyzed and presented seasonally. The TMDL states that benthic macroinvertebrate communities are impaired because of excessive algae in response to nutrient impairment. A seasonal analysis is especially important for sites downstream of Tapia WRF which has a discharge prohibition from November 15 through April 15, resulting in very different concentrations by season. Seasonal analysis reveals that Tapia WRF increases nutrients during the discharge season, with significantly lower concentrations during the non-discharge season. Comment 1-D41

Pages 7-13 to 7-14

Comment (42): Table 7-6: Statistics displayed in Table 7-6 show annual values for each site. Table 5, below, shows what the NOx-N portion of Table 7-6 (page 7-13 to 7-14) would show if divided by Tapia WRF's discharge and non-discharge seasons. Summary values in this table using include Heal the Bay data and data from other agencies that monitor those same locations. Data are from 1/1/2000 through 2010. This table shows that concentrations are much lower in the dry season when algae cover increases.

Comment 1-D42

Table 5. NOx-N at Heal the Bay stations, by season, beginning 2000. NO3-N included from coincident monitoring sites.

	MC1 (dry)	MC1 (wet)	MC12 (dry)	MC12 (wet)	MC15 (dry)	MC15 (wet)
Count	92	99	41	29	69	74
Average	0.33	3.88	.04	0.14	0.93	4.53
Median	0.20	3.56	.03	0.03	0.50	4.6
Min	0.005	0.20	.005	0.005	0.04	.3
Max	3.7	13.1	.31	0.86	7.9	8.6

Comment (43): Because there are natural sources of nutrients which confound efforts to determine the degree of impairment, an analysis of natural sources should have been done. An analysis of natural background water quality from all potential reference sites mentioned should have been conducted for consideration of all the potential causes of low benthic macroinvertebrate community scores. The following evidence needs to be included in EPA's analysis:

Comment 1-D43

a. Water quality at sites LV1 and LA County 16 should have been included in that assessment; although the habitat may be slightly altered there, the upstream area is protected open space and water flowing from the area is representative of the natural upstream contributions to water quality.
b. Stein and Yoon (2007) found that in southern California reference streams "concentrations of several nutrients were higher than USEPA-proposed nutrient guidelines (i.e., US Environmental Protection Agency guidelines for Ecoregion III, 6). This finding indicates that background nutrient levels in southern California may be higher than in other portions of the country."
c. LVMWD (2012) reports median concentrations of phosphate-P at undeveloped sites in the northern, Monterey Formation headwaters ranges from 0.01 mg/L (J_Cheeseboro) to 0.99 mg/L (J_EFLasVir). The median for all undeveloped northern headwaters sites is 0.13 mg/L, meaning that more than half the samples taken from those sites exceeds the 2003 and proposed TMDL limits for Malibu Creek. The median NO3-N concentration is 0.20 mg/L and the maximum is 3.5 mg/L.

Pages 7-14 to 7-21, Tables 7-6, 7-7, Figures 7-16, 7-17 and text

Comment (44): The EPA incorrectly reports Heal the Bay's phosphate data as orthophosphate-P (PO4-P), but Heal the Bay phosphate methods result in phosphate as orthophosphate (PO4-HPO4). Heal the Bay phosphorus results are derived from readings taken with a LaMotte Smart Colorimeter with a cadmium and zinc reduction. The process does not include digestion, which would be necessary to measure PO4-P. To verify the magnitude of this error, we evaluated data we received from Heal the Bay and calculated the following annual values for PO4-HPO4 (Table 6, below). Compare these with the values in TMDL Table 7-6. The TMDL overestimated phosphorus concentrations due to this error, and will need to revise graphs and re-do other calculations throughout the Water Quality Data and Analysis Section and other TMDL findings dependent on these data. Comment 1-D44

Table 6. LVMWD calculation of HtB PO4-HPO4 statistics.

Site Species	1 PO4-HPO4	12 PO4-HPO4	15 PO4-HPO4
Count	114	70	24
Average	1.82	0.27	1.51
Median	1.42	0.27	0.65
Min	0.33	0.03	0.17
Max	5.46	0.51	5.12

Comment (45): The TMDL also neglects native phosphorus inputs from Monterey Formation sediments carried downstream. Fig. 2 on page 76 of LVMWD report No. 2475.00 shows that the total phosphorus concentration of local Monterey Formation rock is two orders of magnitude larger than its phosphate fraction. This less-soluble fraction is carried into the creek via sediment runoff from the Monterey Formation, and is invisible to load assessments based solely on dissolved phosphate data as it is in this TMDL. Comment 1-D45

Page 7-14, Table 7-6

Comment (46): We have also compared all the values given in table 7-6 with the data we received from Heal the Bay converted using molecular weights to PO4-P (which may be an underestimate), shown below by season (Table 7). Comment 1-D46

Table 7. Statistics for PO4-P calculated using mol. wts.

Site Species season	1 PO4-HPO4 Dry	1 PO4-P Dry	1 PO4-HPO4 Wet	1 PO4-P Wet	12 PO4-HPO4 Dry	12 PO4-P Dry	12 PO4-HPO4 Wet	12 PO4- Wet	15 PO4-HPO4 Dry	15 PO4-P Dry	15 PO4-HPO4 Wet	15 PO4-P Wet
Count	66	66	48	48	41	41	29	29	14	14	10	10
Average	1.19	0.38	2.70	0.87	0.29	0.09	0.25	0.08	0.59	0.19	2.79	0.90
Median	1.21	0.39	2.79	0.90	0.28	0.09	0.27	0.09	0.45	0.14	3.28	1.06
Min	0.33	0.11	0.61	0.20	0.03	0.01	0.08	0.03	0.18	0.06	0.17	0.05
Max	3.16	1.02	5.46	1.76	0.51	0.16	0.50	0.16	2.31	0.75	5.12	1.65
Excursions (>0.1)	--	66 (100%)	--	48 (100%)	--	15 (31%)	--	5 (14%)	--	10 (71%)	--	9 (90%)

Page 7-15

Comment (47): Comments made to dismiss evidence of naturally elevated nutrients at site LV1 are unsupportable. The EPA notes that the MCWMP data is the most useful for the spatial distribution of TN. (We remind the EPA that the National Park Service data also has a very useful spatial distribution and includes both developed and undeveloped sites.) The TMDL notes that TN in summer and winter at LV1 is upstream of most anthropogenic influences, and has high concentrations of TN ranging from 1.22 to 1.73 mg/L. Yet these high values are essentially dismissed because a Heal the Bay report has noted the presence of unstable stream banks and illegal dump sites above this station. We have observed discarded construction materials at the site, but nothing organic that would contribute to elevated nitrogen concentrations. Furthermore, the National Park Service data from more pristine sites farther upstream support the validity of the LV1 data as representative of natural conditions. Those values are given in the table below (Table 8), and also illustrate the heterogeneous nature of water quality from streams draining the Monterey/Modelo Formation. Note also that the MCWMP reporting limit for TKN was 0.5 mg/L which may not have been sensitive enough for this analysis. Comment 1-D47

Table 8. NPS nutrient data upstream of LV1.

	NO3-N (summer range)	NO3-N (winter range)	PO4-P (summer range)	PO4-P (winter range)
J_EFLASVIR	0.05 – 0.90	0.01 – 0.80	0.61 - 1.62	0.60 – 0.95
S_ULASVIR	0.01 – 0.50	0.02 – 0.10	0.04 – 0.19	0.01 – 0.16

Page 7-17

Comment (48): The EPA's assessment of data from Busse et al. (2003) results in a conclusion that "the reference sites, as well as several of the other sites, show inorganic N as a small fraction of total N." This is repeated on page 9-11 where the TMDL says "Available information on total N and total P concentrations suggest that the totals (which include organic forms) are much higher than the inorganic nutrient concentrations." A comparison of TN and NO3-N concentrations from the Los Angeles County gage site (R-13) shows that on average NO3-N is 98% of TN, but there is a standard variation of 26%. The average ratio of NO3-N to TN at site R-1 was 89%, with a standard deviation of 22%. Thus, on average, TN is not much higher than NO3-N at this site. A comparison of PO4-P and TP shows that on average TP is 22% higher than PO4-P at R-13, and at R1 is 52% higher. Naturally elevated phosphorus levels resulting from geologic sources will make it unlikely that phosphorus will ever be limiting. The EPA's conclusion that lower nutrient levels will reduce algal growth rests on findings that substantially underestimate both N and P from native geological sources by failing to consider this evidence and evidence presented in other comments above also overlooked in the TMDL analysis. Comment 1-D48

7.5.1 Nitrate plus nitrite N Trends (page 7-17 to 7-19)

Comment (49): In its earlier sections, the TMDL states that a TMDL is required to account for seasonal variation, but there is very little attention to seasonal variation in the analyses of the data. Besides including data from Malibu Creek sites from organizations other than Heal the Bay, and besides including a fuller set of reference site data, Figure 17-12 should display box plots to show wet and dry season data separately. The existing 2003 nutrient TMDL targets and analysis derived from its adherence to EPA's TMDL guidance to account for seasonal variation, in contrast to the limited seasonal analysis conducted for this draft TMDL's revision of these previously established EPA targets **Comment 1-D49**

Page 7-18

Comment (50): The EPA incorrectly interpreted conclusions from LVMWD (2011) by saying "LVMWD (2011) suggest that nitrate concentrations in the watershed are naturally elevated due to the Modelo formation." A thorough review of the report will not reveal such a statement. Surface water monitoring does not indicate elevated nitrate levels in streams draining the Monterey/Modelo Formation. What the report does include are suggestions that the Monterey/Modelo Formation is capable of yielding elevated concentrations of nitrogen compounds. In the text on page 78 we report the high nitrate concentrations found in a benchtop reactor test of crushed rock from Malibu Creek's Modelo Formation headwaters in deionized water (CSDLAC 1996)[12], showing that the rock is capable of producing water consistent with the nutrients and metals detected in surface waters, whereas direct measurements of urban runoff show this source has lower levels of these compounds than those running directly off of both weathered and freshly exposed areas of Monterey Formation rock. Nutrient loads along with other compounds from sites classified as urban development do not reflect actual loads from urban development because these sites are also located within and downstream of Monterey Formation rock. This oversight is clearly shown by results from lower Cold Creek, which is also downstream of significant urban development but not Monterey Formation rock. Academic literature on the Monterey Formation supports the CSDLAC finding (Piper and Isaacs 2001)[13]. **Comment 1-D50**

Comment (51): Absent either urban development or significant exposures of Monterey Formation rock, the only thing that the TMDL's coastal "reference" streams are useful for is to identify expected nutrient and benthic macroinvertebrate scores from Malibu Creek tributaries lacking both urban development and Monterey Formation rock, such as upper Cold Creek. So Cal IBI scores from that location are virtually identical to those from the TMDL's coastal reference stream sites. They cannot serve as reference sites for assessing urban loads in areas tributary to Malibu Creek located in urban development built on or downstream of the Monterey Formation, as is done in the draft TMDL, because those sites do not represent water quality impacts solely from urban develop, but rather impacts from both urban development and the Monterey Formation. **Comment 1-D51**

7.5.4 Nutrient Reference Conditions in the Malibu Creek Watershed (Pages 7-22 to 7-24)

Page 7-23

Comment (52): The paragraph on geologic influences on nutrient concentrations needs to be revised. The EPA states "Malibu Creek watershed has unique geology, with many areas of marine sediments with the Modelo formation. For nitrate-N, median concentrations at potential reference sites without significant anthropogenic disturbance appear to be less than 0.03 mg/L and mostly less than 0.01 mg/L for many sites both in and outside the Modelo formation, although there appear to be higher

---

[12] County Sanitation Districts of Los Angeles County (CSDLAC), 1996, *Mineral Leaching Study Calabasas Landfill*, Whittier, CA

[13] Piper, D. Z. and C. M. Isaacs. 2001. The Monterey Formation: Bottom-water redox conditions and photic-zone primary productivity. In *The Monterey Formation: From Rocks to Molecules*. C. M. Isaacs and J. Rullkötter, (eds.), Columbia University Press, New York. 2001.

concentrations at the MCWMP LV1 station (median 0.30 and 0.35 mg/L in summer and winter, respectively, perhaps increased by the presence of illegal dump sites and unstable stream banks in this reach) (Table 7-11)." This ignores the National Park Service data given above (Table 8), which shows that NO3-N in the Modelo Formation reaches as high as 0.90 mg/L. **Comment 1-D52**

7.6 Pesticide Data Analysis

Page 7-24

Comment (53): It should be added that Los Angeles County West Vector Control District regularly treats all of Malibu Creek, including those portions within the State Parks, with the larvaecide BTi to control black flies. **Comment 1-D53**

Section 8 – Biological and Habitat Data and Analysis

Pages 8-1 through 8-44

Comment (54): To reiterate, a major objection we have to this TMDL is that while conductivity is included, the TMDL omits data and analysis of data for ionic strength and analysis of any effect conductivity and ion concentrations might have on macroinvertebrate community composition. This TMDL is inadequate without that analysis. For example, chloride concentrations exceed aquatic life standards in several locations in the Modelo/Monterey Formation headwaters, including undeveloped headwaters (Figure 7). The TMDL subsumes conductivity, major ion, and selenium stressors on the benthic macroinvertebrate community under its general analysis of toxicity, dismissing them as causes of low IBI scores based on the results of toxicity tests. This is problematic for several reasons. First, the no-toxicity results include test methods using marine organisms, which can be expected to tolerate high ionic strength water. Second, these results do not include direct toxicity testing of the benthic macroinvertebrate species used to determine IBI scores. Third, as noted in the TMDL, toxicity was reported by Brown and Bay (2005) and was interpreted by them as likely due to sulfate and other dissolved salts in both their Malibu Creek site (HTB-01) and Las Virgenes Creek. **Comment 1-D54**

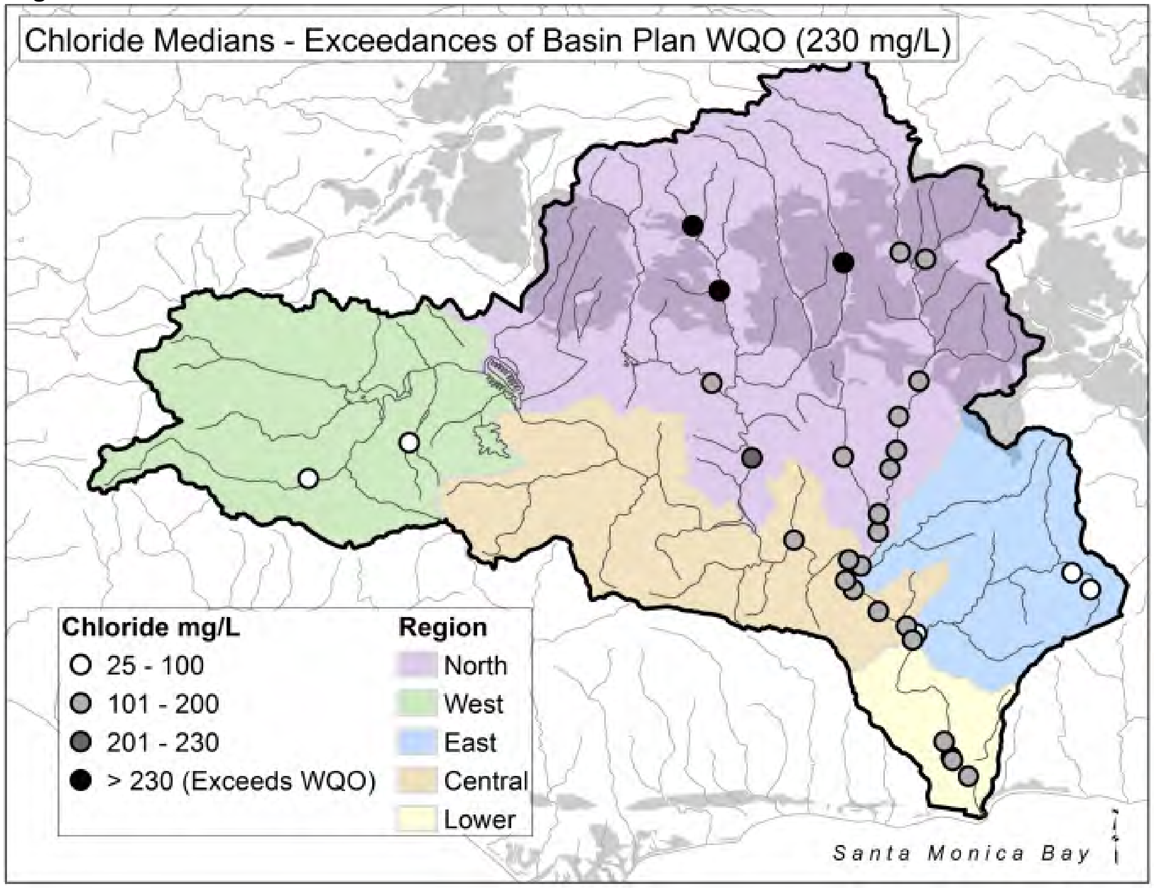


Figure 7. Chloride median concentrations exceed aquatic life standards, even in undeveloped headwaters (northeast portion of the watershed)

We have communicated to the EPA on numerous occasions, both in person and by email, that we believe a primary stressor affecting macroinvertebrate communities in the Malibu Creek watershed is due to high concentrations of ions. One of the documents we sent to the EPA is copied below:

The EPA conducted a study of West Virginia coal mining region streams to "examine the severity of aquatic life use impairment in waters downstream of [mountain top removal] valley fills using genus level data," and compare the efficacy of family and genus level BMI identification in determining impairment (Pond et al. 2008)[14]. Among the results:

- *"Most biological metrics and the MMIs had substantially stronger correlations with specific conductance and individual ions than with the mining-related metals or individual habitat variables."*
- *"Water quality structured benthic communities more than habitat quality. Our study and others (Chambers and Messinger 2001, Howard et al. 2001, Fulk et al. 2003, Pond 2004, Hartman et al. 2001, Merricks et al. 2007) suggest that specific conductance is the best predictor of the gradient*

[14] Pond, G. J., M. E. Passmore, F. A. Borsuk, L. Reynolds and C. J. Rose. 2008. Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools. *Journal of the North American Benthological Society*, 27(3): 717-737.

of conditions found downstream of alkaline mine drainage and valley fill sites in the Central Appalachians."

- *"Elevated conductivity can be toxic through effects on osmoregulation (Wichard et al. 1973, McCulloch et al. 1973, Ziegler et al. 2007)." Details on biological function relative to ionic strength follow this sentence on page 726.*
- *Pond et al. (2008) cite Mount et al. (1997) and Tietge et al. (1997) in giving the relative toxicity of major ions as K>HCO_3 ≈ Mg>Cl>SO_4.*

The following table below compares water quality results for the major ions found to produce toxicity from Pond et al. (2008) to water quality in Malibu Creek (MC) watershed.

Mean (range) Number samples	Pond et al. Mined	Pond et al. Unmined	Malibu Creek watershed	MC northern tributaries	MC Central section	MC Lower Creek
Specific Conductance (µS/cm)	1023 (159-2540) 27	62 (34-133) 10	2362 (66-9240) 2,397	3046 (71-9240) 1,203	2007 (690-8120) 548	1916 (750-3690) 285
Potassium (mg/L)	9.9 (3-19) 13	1.6 (1.3-2) 7	Only collected in North	9.4 (2.0-23.8) 97	No Data	No Data
Bicarbonate (mg/L)	183 (10.7-501.8) 13	20.9 (6.1-3.5) 7	Only collected in North	277[15] (152-610) 95	No Data	No Data
Magnesium (mg/L)	122.4 (28-248) 13	4.3 (2.3-7) 7	Only collected in North	184[16] (104-297) 95	No Data	No Data
Chloride (mg/L)	4.6 (<2.5-11) 13	2.8 (<2.5-4) 7	159 (20-325) 395	188 (92-325) 149	154 (64-270) 109	146 (78-196) 114
Sulfate (mg/L)	695.5 (155-1520) 13	16 (11-21.6) 7	949 (16-2300) 358	1524 (901-2300) 124	718 (201-1440) 117	609 (264-2050) 108

These data show that water in Malibu Creek watershed has higher concentrations responsible for macroinvertebrate toxicity and lowered BMI MMI scores than Appalachian valley fill sites. However, in the case of Malibu Creek, these concentrations are natural. Monitoring sites in open space headwaters in the Monterey Formation have the highest values and are diluted downstream.

Comment (55): Turning to ionic impacts on the algal diatom community, the TMDL did not evaluate ionic impacts on the diatom community despite well-known documentation of effects in the scientific literature. Potapova and Charles (2003)[17] for example showed that diatom assemblages respond not only to conductivity, but to gradients in major ion concentration. We contacted the senior author of this work, Marina Potapova, who reviewed mounted slides from LVMWD's 2011 algal bioassessment

Comment 1-D55

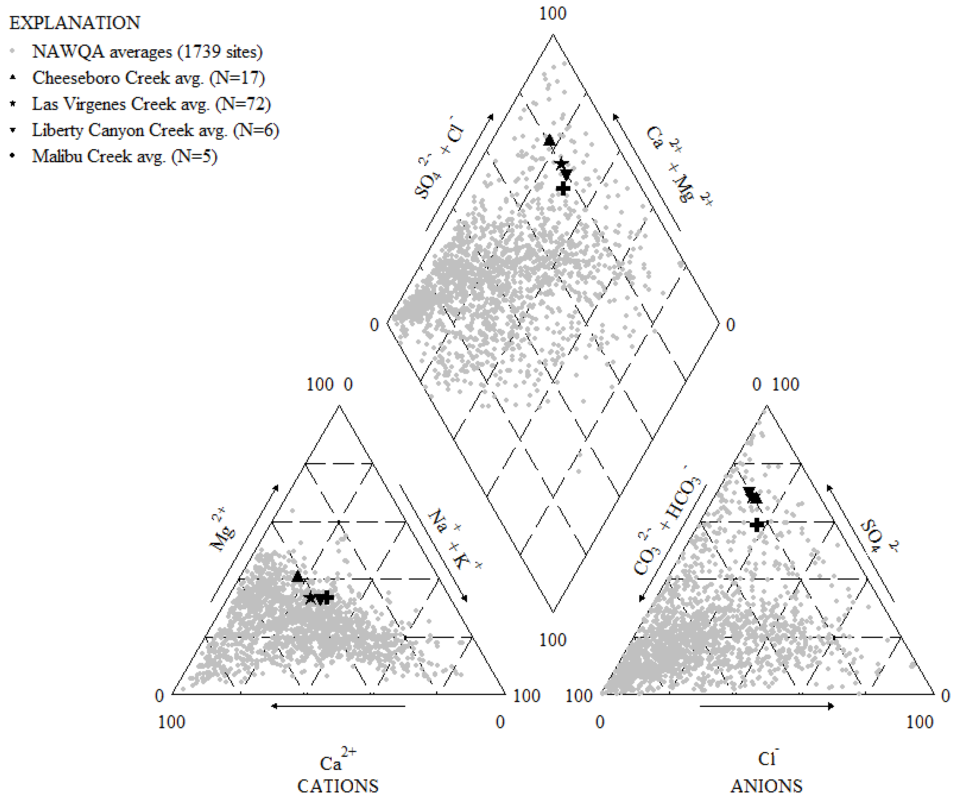
[15] Including values derived from conversion of bicarbonate alkalinity from LVMWD and landfill sites.
[16] Including values derived from conversion of magnesium hardness from the Calabasas Landfill Cheeseboro Creek site.
[17] Potapova, M., Charles, D. F. 2003. Distribution of benthic diatoms in U.S. rivers in relation to conductivity and ionic composition, *Freshwater Biology*, 48(8): 1311-1328.

and found that "the diatoms clearly indicate a high ionic content," adding that one diatom species found in abundance on the slides "may be new to science and potentially endemic." [18] The table below provides additional detail on the halophilic diatoms most common in Malibu Creek identified in her review.

Taxon Name	Autoecology
Navicula gregaria	Brackish water ecotype (Bahls et al., 1984)
Nitzschia communis	Brackish water ecotype (Bahls et al., 1984); Cloudy water (TSS< 25 mg/L) ecc
Cocconeis placentula	Common in high Ca streams (Kovics et al., 2006)
Navicula tripunctata	Common in high Ca streams (Kovics et al., 2006)
Amphora pediculus	Common in high Ca streams (Kovics et al., 2006)
Cyclotella meneghiniana	Brackish water ecotype (Bahls et al., 1984);
Tabularia fasciculata	Prefers brackish waters with elevated Na and SO4 (Western Diatom database,
Navicula salinarum	Prefers brackish waters with elevated Na and SO4 (Western Diatom database,
Ctenophora pulchella	Prefers brackish waters with elevated Na and SO4 (Western Diatom database,
Nitzschia microcephala	Prefers brackish waters with elevated Na and SO4 (Western Diatom database,
Entomoneis paludosa	Prefers brackish waters with elevated Na and SO4 (Western Diatom database,

Given the ionic character of Malibu Creek's water quality, we do not think that regional, southern California metrics for biological indicators are appropriate in this watershed because they would always result in low scores and indicate impairment even in undeveloped subwatersheds draining the Monterey Formation. At the very least, bioassessment guidance documents should exclude the application of standard IBI metrics to outlier watersheds like Malibu Creek, or, at the very least, include the kinds of warnings that are given so frequently in the New Zealand Periphyton Guidelines. Malibu Creek's water quality is an outlier regionally and even nationally, as shown below where local data are compared to national data from the USGS NAWQA database.

[18] Personal communication with Dr. Randal Orton, December 7 and 8, 2011.



Piper diagram of major ions in the Malibu Creek watershed compared with national NAWQA data.

8.1.1 Inventory of Biological and Habitat Data (Page 8-1 to 8-44)

Page 8-1 to 8-2

Comment (56): TMDL Table 8-1 shows that the EPA has slope data, but these data were not included in analyses of macroinvertebrate community metrics. Slope is a known, important variable in benthic macroinvertebrate IBI scores and should be analyzed. The EPA attends the State's Biological Objectives Regulatory Advisory Group meetings, where the problems associated with slope have been discussed. Not only were SC-IBI scores depressed in low slope areas, but there was an insufficient number of reference sites in many parts of the state, and especially in the south coast xeric region to validate use of the SC-IBI in low gradient streams. Note also that the reference sites selected by the EPA both have greater slope than the state's threshold for low gradient streams (1.0%). SC14 and LC18 both have a relatively high gradient of 3.7%. MC-1 has a slope of 0.5%. MC-15, at the County gage is given with a slope of 3.5%, but we question this value. Annual bioassessment is conducted at that site for Tapia WRF, but the gradient recorded for that site, R-13, is 1.15%. There is a concrete apron covering what would have been a small cascade of base rock for use as the Los Angeles County gage at this site. The concrete and rock section is steep and separates a shallow upstream pool from a deeper downstream pool. However, the steeper concrete and rock section of the creek is only about 15 meters, so most of either assessment would be conducted in the shallower upstream reach. Perhaps Heal the Bay also samples from that steep 15 meter section for a total slope of 3.5%. However, 85% of their reach would be shallower. Site MC-12 separates Rock Pool from the Visitor Center Pool in Malibu Creek. The channel length between the pools is steep and boulder, but the distance between them is less than 150 m, so they also sample the pools, using pool edges when necessary. Those sections will be low gradient. County Sanitation Districts of Los Angeles County staff provided us with an analysis of slope and SC-IBI using data from this TMDL, and found a significant positive correlation between them (Figure 8).

Comment 1-D56

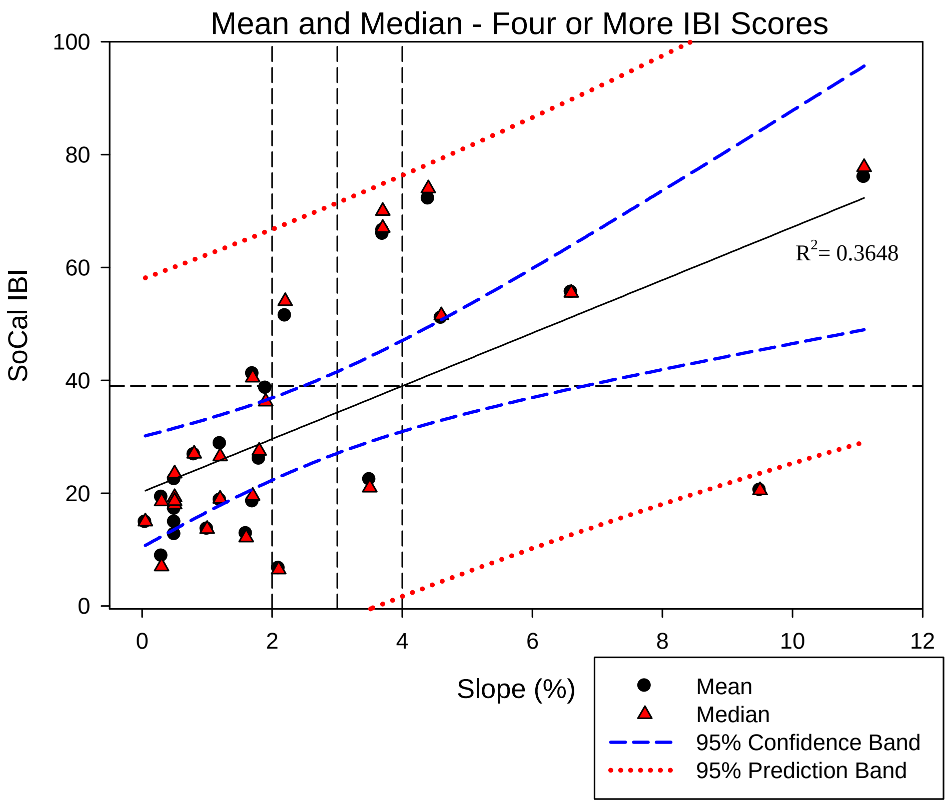


Figure 8. Slope explains 36% of the variation in SC-IBI scores presented in this TMDL (CSDLAC).

8.1.3 SC-IBI Scores (Pages 8-4 through 8-12)

Page 8-4

Comment (57): The southern California IBI (SC-IBI) is inappropriate for regulatory use in this creek.

a. The SC-IBI was developed for perennial wadeable streams, while Malibu Creek is non-perennial or non-wadeable along most reaches. Based on our observations, during the summer most of Malibu Creek dries entirely or forms isolated deep pools so is neither perennial, nor wadeable.
   - Heal the Bay site 1 dries up entirely or forms a shallow, stagnant pool most summers.
   - Heal the Bay site 12 dries up in the downstream half most summers, and the upper portion is in a deep pool.
   - Other monitoring sites along Malibu Creek also dry up in the summer (LVMWD RSW_MC009U, LVMWD RSW_MC004D) or form deep pools that require alteration of the monitoring protocol to be able to sample (LVMWD RSW_MC003D).

b. The SC-IBI was rejected for use in California's Biological Objectives program because it does not reflect the range in natural gradients within the southern California region.
   - Instead, the state is using a hybrid metric composed of an observed versus expected model of expected taxa for sites with similar temperatures, precipitation, watershed

area and elevation, and a predictive multimetric index of biological community structure where metric expectation is based on seven natural site specific gradients, and including six gradients for expected ionic constituents as influenced by geology.

Abundant literature can be found on the effects of seasonal drought and non-perennial flow on macroinvertebrates. An unpublished review of the literature on macroinvertebrate communities and stream flow by the Xerxes Society[19], includes reference to numerous peer reviewed journal articles that investigate non-perennial streams and macroinvertebrate communities in them. Numerous causes of species composition differences from and similarities to perennial streams are discussed. We copy several statements from that white paper here.

a. A positive relationship has been noted between the proportion and/or abundance of EPT taxa and increasing flow permanence (Feminella, 1996; Smith *et al*. 2003; Wood *et al*., 2005). This is not surprising, as these orders are known in general to require cold, well-oxygenated, fast-flowing water (Merritt *et al*., 2007; Wiggins, 1996; Stewart & Stark, 2002).
b. Chadwick & Huryn (2007) noted that channel drying typically excludes large-bodied aquatic taxa whose long generation times and high biomass requires perennial flow to complete their life cycle, specifically freshwater mussels (Margaritiferidae, Unionidae), some odonates (Aeshnidae, Corduligasteridae, Gomphidae), and some families of stonefly (Pteronarcyidae, Perlidae).
c. Isolated pools that formed a few meters apart in one intermittent stream reach differed substantially in nutrient concentrations and dissolved oxygen levels as drying progressed, and supported different macroinvertebrate communities (Stanley *et al*., 1997).
d. Flooding and drying is accompanied by changes in pH, dissolved oxygen, conductivity, siltation level, and concentrations of ions, toxins, or pollutants (Williams, 1987; Stanley *et al*., 1994: Lake, 2000)… These changes in turn affect the taxonomic composition and biotic interactions of the macroinvertebrate community.
e. Adult invertebrates with strong flight capability and high dispersal capacity, especially beetles (Coleoptera) and true bugs (Hemiptera), are often more abundant and diverse in intermittent streams (Williams, 1996; Boulton, 2003; Bogan & Lytle, 2007; Bonada *et al*., 2007).
f. Seasonal changes in community composition are larger and more significant in intermittent streams, with rheophilic (requiring water for their entire life cycle) wet-season species gradually being replaced during the dry season by winged air-breathing species of true bugs and beetles (Williams, 1987). **Comment 1-D57**

Page 8-4

Comment (58): If the SC-IBI is to be applied, reference condition should be based on local reference sites. On page 7-1 of the TMDL the EPA relates that the two reference sites selected are SC-14 (coastal Solstice Creek) and AS-18 (Coastal Arroyo Sequit). The TMDL describes how the SC-IBI is calculated on page 8-4 by saying "Ode et al. (2005) used a statistical criterion of two standard deviations below the mean score from unimpacted reference sites to establish a value of SC-IBI as an impairment threshold." If the mean of each potential reference site in the area were used (i.e. Heal the Bay sites/mean IBIs 1/76, 6/51, 8/32, 9/41, 14/67, 18/56, 19/66 and MCWMP site/mean IBI LV1/24 an LA County 16/20.) the mean from these sites is 48.1 and the standard deviation is 20. So using the SC-IBI threshold selection

[19] http://www.xerces.org/wp-content/uploads/2009/03/xerces_macroinvertebrates_indicators_stream_duration.pdf

method of 2 standard deviations below mean, an impairment threshold could be set at 8. By limiting reference sites to only the six Heal the Bay reference sites, the mean is 55.5 and the standard deviation is 15.4, so a threshold of 25 could be used. Or another impairment threshold could be considered. In any case, local reference scores indicate that the threshold selected for the SC-IBI (40) is inappropriate in this area. Comment 1-D58

Page 8-5

Comment (59): Table 8-2, Heal the Bay SC-IBI Bioscores, appears to include scores that are different from those supplied to us by Heal the Bay. Instead, this table shows sites and scores presented by Alison Lipman to the California Aquatic Bioassessment Workgroup in 2009.[20] Alison Lipman was Heal the Bay's Stream Team manager, but two people have held the position since she left in 2010. We have asked Heal the Bay where the 18 PowerPoint slide sites are, for those that have non-standard Heal the Bay site IDs. We do not have that information at this time. We have still not been able to determine the location of the following sites with non-standard Heal the Bay site IDs, and therefore cannot respond with comments: MC1B, MC12A, MC13, MC8, MC8B, MC20 andMC21. The following comments result from a comparison of scores in Table 8-2 with scores for standard Heal the Bay sites provided to us by Heal the Bay.

a. MC-1: The PowerPoint table shows no score for the spring sampling in 2001, 2006, 2008, and 2009, but the data we received has scores for these dates. Heal the Bay indicated that this is the same location as their water quality monitoring site 1.
b. MC1B: This appears to be where the score for MC-1 was recorded for spring 2001, but it does not include the other missing scores for MC-1. We have not been able to determine where this site is.
c. MC-12: This is the reach downstream from Heal the Bay water quality monitoring site 12 at Rock Pool.
d. MC-12A: We have not been able to determine where this site is.
e. MC-13: Heal the Bay has no site MC-13, but has a site 13 on Las Virgenes Creek. Heal the Bay has informed us that this is at a location we know in Malibu Creek State Park where a trail (once a dirt road) crosses Malibu Creek. This site dries up for months most summers.
f. MC15: The table shows no scores for 2000 and 2001, yet the data we received from Heal the Bay has scores for these years at this site.
g. MC-8: Heal the Bay has no water quality monitoring site 8 on Malibu Creek, but they do have a site 8 on Palo Comado. Heal the Bay has reported to us that this site is just upstream of Tapia WRF discharge 001.
h. MC-8B: Heal the Bay tells us this site is just downstream of Tapia WRF discharge 001.
i. MC-9: These are the scores for MC-15. Heal the Bay confirms that site MC-9 is at their water quality monitoring site 15.
j. MC-20: Heal the Bay has no site MC-20. Heal the Bay has no site 20 at all. We have not been able to determine where this site is.
k. MC-21: Heal the Bay has no site MC-21. They do have a site 21 on Medea Creek, but the data they sent us does not show any IBI scores for that site. We have not been able to determine where this site is.

Comment 1-D59

[20] http://www.waterboards.ca.gov/water_issues/programs/swamp/reports.shtml#bmp_assess

Page 8-15

Comment (60): The TMDL says "For O/E there does not appear to be a significant difference between the Malibu main stem MC-1, MC-9, and MC-15 stations and the reference sites." Is this a typo that should say MC-12? Does the EPA have taxa data for these non-conventional Heal the Bay sites in order to compute O/E? **Comment 1-D60**

Page 8-7

Comment (61): Table 8-4 with Los Angeles County SC-IBI Bioscores appears to have many errors. The sites and dates sampled all appear to be correct, but all the scores listed here are incorrect. Furthermore, LA County provided the EPA with all their Bioassessment reports in September 2011, including reports for 2009, 2010 and 2011 in September 2011, but scores for those dates are not included here. **Comment 1-D61**

Page 8-8

Comment (62): Table 8-6 with SC-IBI Scores from LVMWD appears to have many errors. Sampling dates and locations appear to be correct, but several scores have been entered incorrectly. **Comment 1-D62**

Page 8-8

Comment (63): USEPA 2010-2011 Benthic sampling site locations are not given with adequate specificity for proper review. Site locations are given on page 8-8 for the 5 EPA benthic macroinvertebrate sampling locations, but are given as narrative that is very imprecise. MC EPA-1 is described as being between two points that are about 500 meters apart. The description is much less revealing as to the location of EPA-2, EPA-3 and EPA-4. Based on the description, EPA-2 could be anywhere along a 5 km section of the creek, most of which dries up in the summer, and some of which is pooled behind Century Dam. EPA-3 could be anywhere along a 2.5 km section of Malibu Creek, some of which dries up and some of which forms deep pools. EPA-4 could be somewhere along a 5 km section of Las Virgenes Creek. The location of EPA-5 is omitted completely. The EPA's lack of greater specificity on the site locations prevents an assessment of the sites' appropriateness for this TMDL and prevents us from being able to comment more adequately. Examples follow, below: **Comment 1-D63**

a. "For the two sites in Malibu Creek State Park, a single dominant taxon was accounted for over 80% of the individuals collected whereas the other three sites outside of the park had approximately a fifth of the individuals as a single dominant taxon."(Page 8-9)
    - Most of Malibu Creek upstream of the confluence with Las Virgenes Creek dries up entirely in the summer, with the exception of Century Lake, Rock Pool and the inaccessible pools between them. The lake and pools are not wadeable, so we assume EPA-2 and possibly EPA-3 were sampled at non-perennial sites.
b. "The percentage of the highest tolerant species was observed in the State Park at MC-EPA2." (Page 8-9)
    - Again, we suspect this sample was taken along a stretch that we know is unshaded and becomes entirely dry most summers.

c. "The other site further upstream in Malibu State Park had the lowest percentage of tolerant species (3%); this site also had the highest percentage of collectors (96%)." (Page 8-9)
   - We suspect this site is between Malibou Lake Dam and Century Lake, a stretch that becomes dry or damp most summers and is forested with a deciduous tree canopy.

d. "These results indicate that the benthic community along the Malibu Creek main stem were all of poor condition and the sites located in the State Park did not fare better, likely due to the strong impact of the upstream development. This matches well with our analyses of the upstream development and impervious surface discussion."
   - The hypothesized cause may also result from any number of causes, including inappropriate site selection.

e. "Water quality taken at the time of the benthic macroinvertebrate sample collection showed that specific conductivity measurements were over 1.800 mS/mho at all sites." (page 8-10)
   - We suspect the high conductivity and the ionic species present in high concentrations that contribute to that conductivity, contribute significantly, along with the non-perennial flow, to the low scores relative to the SC-IBI thresholds. Given that we know specific conductivity is higher along Las Virgenes Creek, we would expect the EPA site there to have the highest conductivity among their sites. It is not surprising then that the SC-IBI was the lowest.

Page 8-10

Comment (64): EPA's conclusion on SC-IBI scores is misleading. Conclusions are justified with various median scores, ignoring the fact that the ranges are large. The median value from Heal the Bay's 8 samples taken at reference site 9, for example, is 41, with scores ranging from 26 to 59. It is misleading to say that if median passes, the the site passes. This Modelo Formation situated reference site fails half the time. Similarly, Heal the Bay site 15 has a median score of 24 but a range of scores from 6 to 43. Even Heal the Bay site 3 in the pristine Cold Creek headwaters (with no Monterey Formation) has a 31 point spread in scores. The California State Biological Objectives technical team is developing a scoring tool that incorporates a calculation of uncertainty due to the variation in scores from sample to sample. It is clear from the variation of scores in this region that there is a large degree of uncertainty, yet the EPA does not account for that and instead uses an absolute threshold that has been rejected by the state. Comment 1-D64

Page 8-11 and 8-12

Comment (65): EPA incorrectly justifies their reference site selection with respect to differences in geologic terrain by citing scores at HtB Ch-6. Heal the Bay has two reference sites in the Modelo Formation-dominated, undeveloped headwaters of Malibu Creek, but selectively discusses just site 6 in Cheseboro Creek, which has only one failing score out of seven assessments scores ranging from 34 to 64. EPA omits mention of the other reference site, site 9, in the Las Virgenes Creek headwaters. Site 9 was sampled 8 times with scores ranging from 26 to 59 and with 50% of scores failing. Heal the Bay characterizes both sites as "minimally disturbed" but site Ch-6 has more canopy cover and is probably steeper. Test sites have even lower canopy cover, so it would be more appropriate to have included both sites 6 and 9 as reference sites. Comment 1-D65

Comment (66): EPA is ignoring EPA policy on natural sources of impairment. EPA says “perhaps in this Watershed and with the unique geology, this site [site Ch-6] is appropriate to use as basis for comparison with impacted sites; furthermore, this station does achieve acceptable SC-IBI scores.” It appears that the EPA maintains the assumption that if a site attains passing scores, it is reference, and if it does not, it is not reference. This is in contradiction to EPA policy established through the EPA memorandum “Establishing Site Specific Aquatic Life Criteria Equal to Natural Background”[21], which states “For aquatic life uses, where natural background concentration for a specific parameter is documented, by definition that concentration is sufficient to support the level of aquatic life expected to occur naturally at the site, absent any interference by humans.” We interpret this to mean that at a natural site (LV-9), the range of scores is by definition, the range of scores that are representative of the natural condition. Whatever stressor or stressors are present and depressing SC-IBI scores at HtB site LV-9 can be considered as the “natural background concentration of specific parameters.” Site LV-9’s IBI scores are “the level of aquatic life expected to occur naturally at the site.” Thus, SC-IBI scores in the range of 26 to 59 are the natural expectation for that reference site, not just the scores over 39. This contradicts the selection of 40 as the threshold for discerning impairment. Comment 1-D66

Comment (67): Scattergrams of SC-IBI scores at all potential reference sites (Figure 9) shows the large variation in scores by site and shows that reference sites do attain failing scores. Sites selected by the EPA as reference are sites 14 and 18 – the coastal sites with the highest maximum scores. Figure 8 shows that Heal the Bay’s two reference sites in the undeveloped Monterey Formation headwaters attain a similar range of scores, each with passing and failing scores. A non-parametric Mann-Whitney difference of means test on scores from sites Ch-6 and LV-9 shows that there is no significant difference between the two sites’ scores. Both sites should be included as reference. We argue that Malibu Creek will receive the water quality effects from the Monterey/Modelo Formation and will experience the same depression of scores as those reference sites that lie within the Monterey/Modelo Formation.

Comment 1-D67

[21] http://water.epa.gov/scitech/swguidance/standards/upload/2009_01_29_criteria_naturalback.pdf

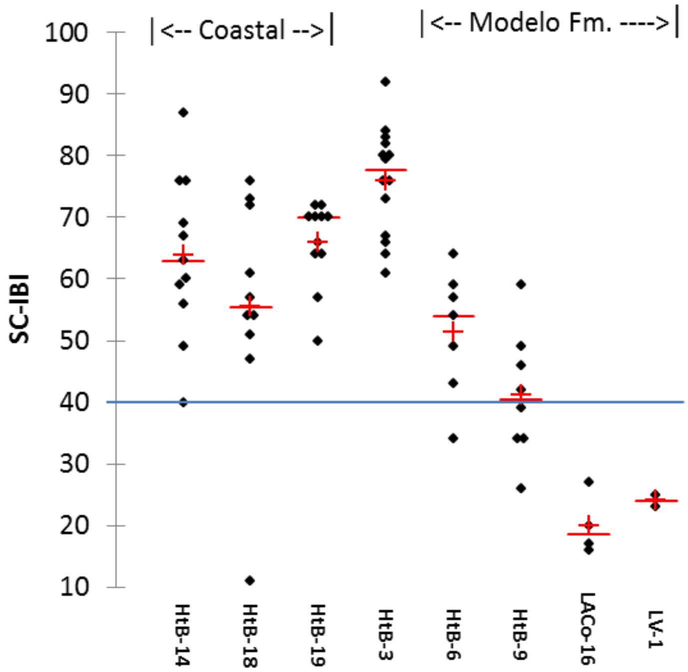


Figure 9. Scattergram of SC-IBI scores at all Heal the Bay sites and sites LACo-16 and LV-1 immediately upstream of development in the undeveloped headwaters of Las Virgenes Creek. Medians are shown as bars and means as crosses. A line is drawn at the EPA threshold of 40.

Page 8-13

Comment (68): EPA states that they used raw taxa data where available, from Heal the Bay, LVMWD, and USEPA. It should be noted that raw taxa data from the Malibu Creek Watershed Monitoring Program and the Stormwater Monitoring Coalition also were supplied to the EPA in fall 2011 and from Los Angeles County in Fall 2012, but none of these data appear to be used. **Comment 1-D68**

Page 8-15 to 8-16

Comment (69): Figure 8-5, the EPA O/E Analysis of Benthic Macroinvertebrate Data showed there was not a significant difference between the test sites MC-1, MC-9, and MC-15 and reference sites LC-18 and SC-14. We do not think this O/E was adequately modeled, but this is one indication that the test sites may not vary significantly from reference. Instead of being dismissed, it should have been pursued further by adding predictor variables, including conductivity and ionic concentrations. Note also that sites MC-1 and MC-9 are non-perennial and should not have been included. See also our comments on the O/E entered for TMDL page 3-2 and for Appendix D. **Comment 1-D69**

Page 8-16

Comment (70): The EPA found that EPT taxa "may be sensitive to the high conductivity associated with the marine sedimentary geologic formations in the watershed." Ephemeroptera are known for their

Comment 1-D70

sensitivity to salinity (Hart et al. 1991[22], Hassell et al. 2006[23] Echols et al. 2009[24]) and to low flow (Echols et al. 2009). Given this finding, the potential effects of high conductivity water draining the Monterey/Modelo Formation should not be so readily dismissed. The USGS maintains a web page with warnings on the water quality hazards to animal life posed by the Monterey Formation[25] (Hazardous Trace Elements in Petroleum Source Rocks: the Monterey Formation). If average specific conductivity were plotted on Figures 8-6 and 8-7, which shows EPT taxa ranges for two reference sites and three test sites, the effects of conductivity would be made more clear. The averages for the reference sites Lachusa 18 and Solstice 14 are 1,531 and 1,185 µS/cm, respectively. The average for MC-1 and LVMWD R-4 is 1,876 µS/cm, while MC-12 averages 2,090 and MC-15 averages 2,151. These coastal streams are unreliable references for expected IBI scores, being substantially lower in ionic strength than Malibu Creek.

Page 8-19

Comment (71): Figure 8-9, the EPA's discussion of Figure 8-9 concludes that conductivity is not so influential on SC-IBI scores as development, but its analysis is flawed. The EPA tests the strength of the relationship between conductivity and IBI scores by regressing median SC-IBI on median specific conductivity for all Heal the Bay sites. When the strength of the association was found to be weak (R^2=0.30), the EPA concluded that there is only a weak correlation between the two. We believe this weak correlation is due to the inclusion of all Heal the Bay sites, including all those where there are multiple stressors present confounding the analysis, which the EPA admits: "the apparent correlation of IBI and Modelo formation drainage may be confounded because the outcrops of this formation are located just north of the 101 freeway corridor where most of the high density development occurs." Yet the EPA concludes without analysis that "results appear to correlate better with the presence of upstream high density development" instead and refers to a map of the developed areas. We avoided the confounding effects resulting from an inclusion of all Heal the Bay's sites by regressing median SC-IBI on median conductivity for just Heal the Bay's six reference sites (3, 6, 9, 14, 18 and 19; figure 10, below). The result shows that 76% of the variation in SC-IBI is due to conductivity. The result for a regression of median O/E on median SC-IBI is 77% (Figure 11, below). Because these are open space reference sites, conductivity will result primarily from geology. By limiting a regression to reference sites, the influence of conductivity alone is more clearly revealed, and the influence is strong.

Comment 1-D71

[22] Hart, B. T., Bailey, P., Edwards, R., Hortle, K., James, K., McMahon, A., Meredith, C., Swadling, K. 1991. A review of salt sensitivity of the Australian freshwater biota, *Hyrdobiologia*, 210: 105-144.

[23] Hassell, K. L. Kefford, B. J., Nugedoda, D. 2006. Sub-lethal and chronic salinity tolerances of three freshwater insects: *Cloen* sp. and *Centroptilum* sp. (Ephemeroptera: Baetidae) and *Chironomus* sp. (Diptera: Chironomidae), *Journal of Experimental Biology*, 209: 4024-4032.

[24] Echols, B. S., Currie, R. J, Cherry, D. S. 2009. Preliminary results of laboratory toxicity tests with the mayfly, *Isonychia bicolor* (Ephemeroptera: Isonychiidae) for development as a standard test organism for evaluating streams in the Appalachian coalfields of Virginia and West Virginia, *Environmental Monitoring and Assessment,* 169: 487-500.

[25] http://energy.cr.usgs.gov/TraceElements/monterey.html

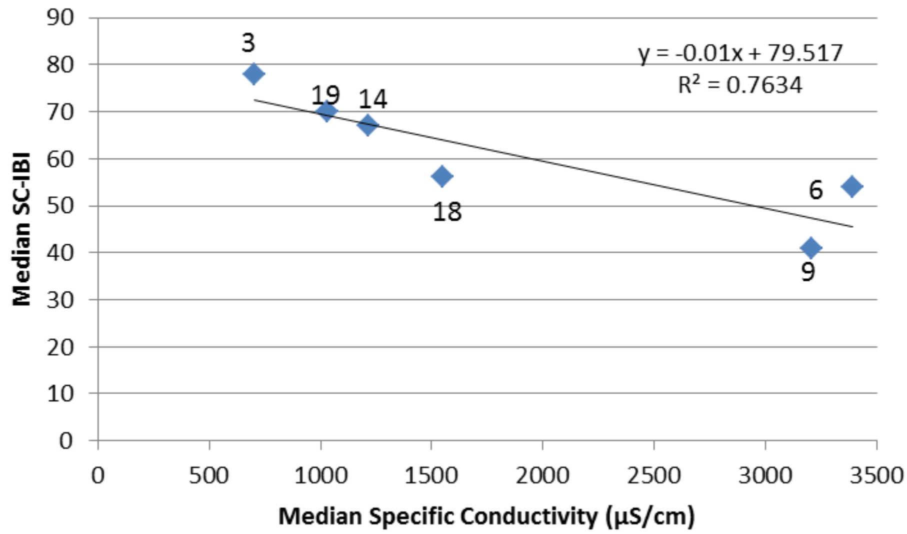


Figure 10. Correlation of Median IBI scores with median conductivity for Heal the Bay reference sites alone.

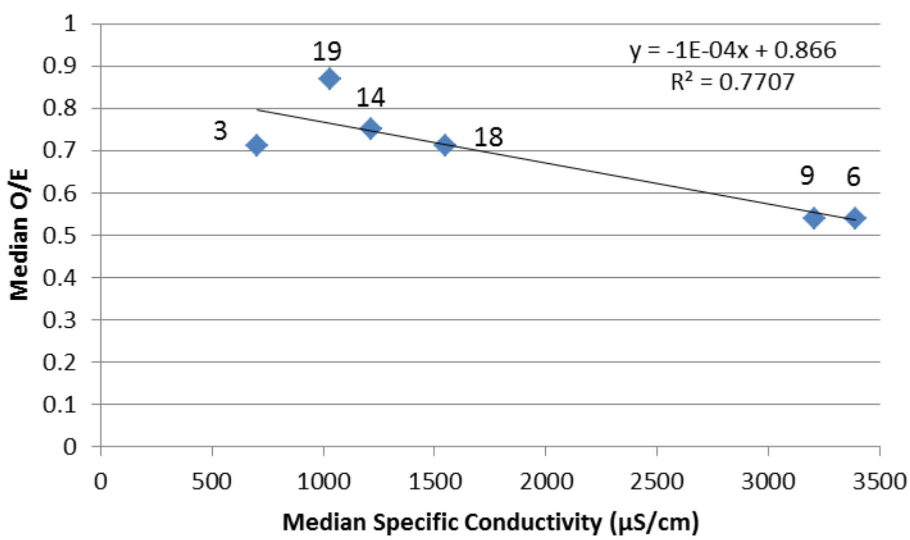


Figure 11. Correlation of median O/E scores with median conductivity for Heal the Bay reference sites alone.

The results above are further indication that the standard threshold for passing and failing SC-IBI scores is not appropriate in this watershed. Natural stressors are at least in part depressing scores, as can be seen by the low median scores of Monterey/Modelo Formation reference sites. Even the coastal site medians attain scores ranked "good," but not "very good."

Page 8-20

Comment (72): Figure 8-10. The EPA's argument that development, rather than conductivity, is the cause of failing SC-IBI scores is facile and misleading. By using only medians, EPA is able to obscure the very large interannual variation in scores at most sites and thereby create what appears to be a reasonable diagram showing that sites in the "high density development" box are the only sites to have median scores of less than 30. This is misleading in several ways. Comment 1-D72

a. First, sites are boxed in Figure 8-10 to show that all the sites with scores less than 30 are downstream of high density development. But it should also be mentioned that all these sites are also downstream of the Modelo/Monterey Formation with water quality draining that formation. The box does nothing to reduce the spatially confounding influences of the Monterey/Modelo Formation and urban development. Everything within and downstream of the Monterey/Modelo Formation attains failing IBI scores at some times, even Ch-6, which is shaded, has slope >1 and may have other advantages we don't know of because we have not been able to see the physical habitat measures. LV-9 is a reference site in the Monterey/Modelo Formation, but fails half the time. The substrate there is dominated by fines and the slope appears to be shallow.
b. Sites MC1, MC15 and MC12 are included in the "high density development" box, when they are very far downstream of any high density development by about 13, 7 and 6 km each. The watershed area upstream of MC1 is about 80% open space. These sites can hardly be classified as "high density development."
c. Scores at these sites have very large interannual variation; a plot of median SC-IBI scores is simplistic and ignores the complexity of the biology in Malibu Creek watershed where there are significant natural source stressors.
d. Finally, the EPA dismisses the influence of the Modelo Formation by comparison of a Modelo Formation site with a site that should never be assessed as a perennial wadeable stream using the SC-IBI. The EPA says on page 8-20: "IBI scores are relatively high (median 56) at CH-6, within the Modelo formation, and low (median 19) at TR-17, with only a small fraction of its drainage in the Modelo formation." Here they compare the median score from a forested reference site in an undeveloped headwater with a channel slope of 2.2% (CH-6) with the median score from a site with 0.5% slope that is along a stretch of creek that forms isolated pools or becomes entirely in the summer (TR-17). Google Earth shows this site within a reach that is dry for more than a kilometer upstream (August 2012 imagery). Heal the Bay monthly water quality monitoring includes a qualitative record of flow ranging from none, to intermittent, to trickle, to steady and then heavy. Of the five summers assessed, flow dropped to "none" three years and to "intermittent" one. Heal the Bay continued macroinvertebrate monitoring at Ch-6 after they stopped monthly water quality monitoring, but for the two years where we have both flow records and SC-IBI, one was "steady" flow (SC-IBI=57 & 59) and one summer had "none" (spring IBI=49).

A better analysis would have been to plot the individual SC-IBI scores with the conductivity measurements made on that date. Because these were not provided, we evaluated the individual SC-IBI scores as scattergrams with sites given in order of increasing median conductivity (Figure 12, below). This plot demonstrates the folly of EPA figure 8-10. Three of Heal the Bay's six reference sites have SC-IBI scores which always fall above the selected threshold of 40. Site SC22 is a special study done on Solstice Creek. Yet, three of Heal the Bay's reference sites have failing (Poor and Very Poor) scores.

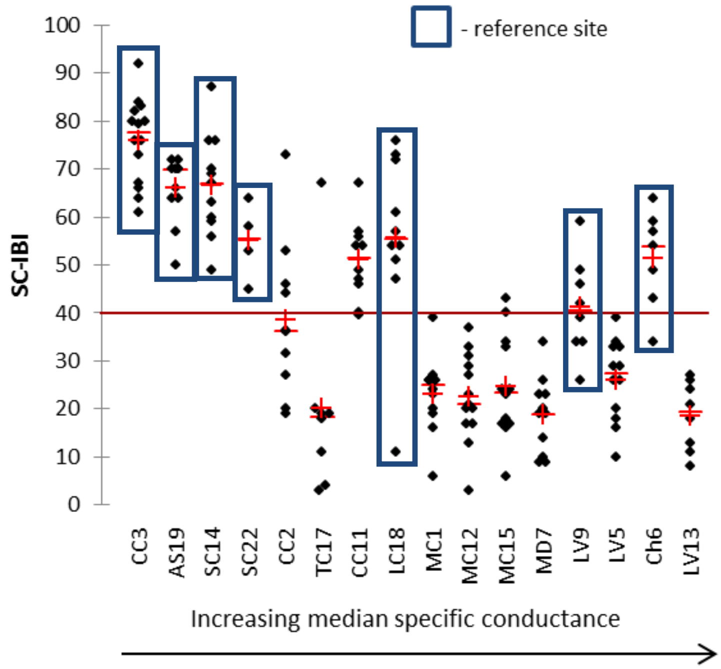


Figure 12. Heal the Bay SC-IBI scores plotted in order of increasing median conductivity by site. Reference site scores are boxed.

Page 8-21

Comment (73): Figure 8-11 is used to show that the only sites with SC-IBI>30 also had average nitrate values less than 1.0 mg/L. Yet there are also failing sites with low nitrate averages. Since nitrate concentrations vary with time, this analysis is better done by sample, rather than by site. Note also that Heal the Bay does not measure nitrate-N, but measures NO3-NO2-N. **Comment 1-D73**

Page 8-21

Comment (74): EPA cites a finding by Luce (2003) that conductivity may have a geologic source, and then ignores that statement to conclude that conductivity is due to stormwater input. At the time Luce did her dissertation work (2003), Yerkes and Campbell's geologic map of Los Angeles County (2005)[26] had not been published, and the USGS (2002) had only recently posted their website warning of the potential water quality hazards posed by the Monterey Formation. With limited information, Luce (2003) made her best guesses about the source of high conductivity and guessed correctly when she said that the source may be geologic. The EPA uses this information to say "it appears most likely that IBI scores are responding primarily to urbanization and only to a lesser degree, if at all, to conductivity itself. It thus appears that conductivity enters these regressions primarily as a surrogate for urban stormwater input." We have no explanation for why the TMDL authors fail to mention the obvious counter-argument that if they are correct that urban runoff is brackish, then we should expect to see similar conductivity in stormwater through the Los Angeles metropolitan area, which is not the case; there is no reason to believe that runoff purely from urban development in this watershed is so different

[26] Yerkes, R. F. & R. H. Campbell. 2005. Preliminary Geological Map of the Los Angeles 30' x 60' quadrangle, Southern California. U. S. Geological Survey Open File Report 2005-1019. http://pubs.usgs.gov/of/2005/1019/.

from urban development elsewhere in the region with respect to ionic strength. Given more time, we could generate the fraction of area upstream from each site that is within the Monterey/Modelo Formation and plot that against conductivity. Lacking that time, we have plotted the fractions for each of 3 tributary regions and for the whole watershed along with conductivity medians for each site in each tributary region or downstream watershed (Figure 13).

Comment 1-D74

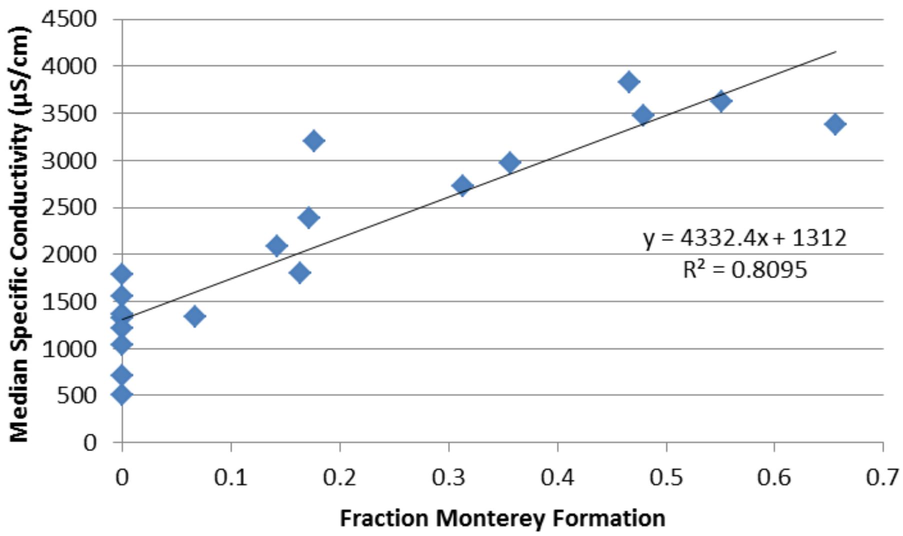


Figure 13. 81% of the variation in median specific conductivity is explained by the fraction of upstream watershed Monterey Formation exposure for Heal the Bay sites.

Page 8-22 to 8-24 and Figures 8-14 and 8-15

Comment (75): The EPA was amiss in assessing the effects of geology on macroinvertebrate measures by limiting analysis to "sedimentary formations" in general and not analyzing the effects of the Monterey Formation sedimentary rock specifically, which has an inordinate influence on water quality. Our analysis shows that a significant source of the variation in SC-IBI scores is the fraction of Monterey Formation in the upstream watershed. The EPA compared median SC-IBI and O/E scores with the fraction of sedimentary geology in the watershed area upstream of those sites and found them "essentially uncorrelated" with R^2 values of 0.01 and 0.02, respectively. It is unfortunate that the EPA ignored the results from the report presented to them with our findings on the Monterey Formation's influence on water quality (LVMWD 2011) and assessed instead the influence of the more general geologic classification of sedimentary rock. We replicated the analysis, but replaced percent sedimentary rock with percent Monterey/Modelo Formation and obtained an R^2 value of 0.22. So while sedimentary rock explains only 1-2% of the variation in SC-IBI scores, the Monterey Formation explains 22% of that variation (Figure 14.) We strongly suspect that the inclusion of other Miocene marine sedimentary formations would improve the strength of the correlation; the Miocene was a period of intensified upwelling of nutrient rich waters in this region, which entered the geologic cycle primarily through the sedimentation and burial of marine diatoms (see our report No. 2475.00, section 3 for references to the Monterey Formation's depositional history and biogenic fraction. It should not surprise anyone that upon exposure in brackish streams, this geological biogenic rock is an effective diatom and algal fertilizer.

Comment 1-D75

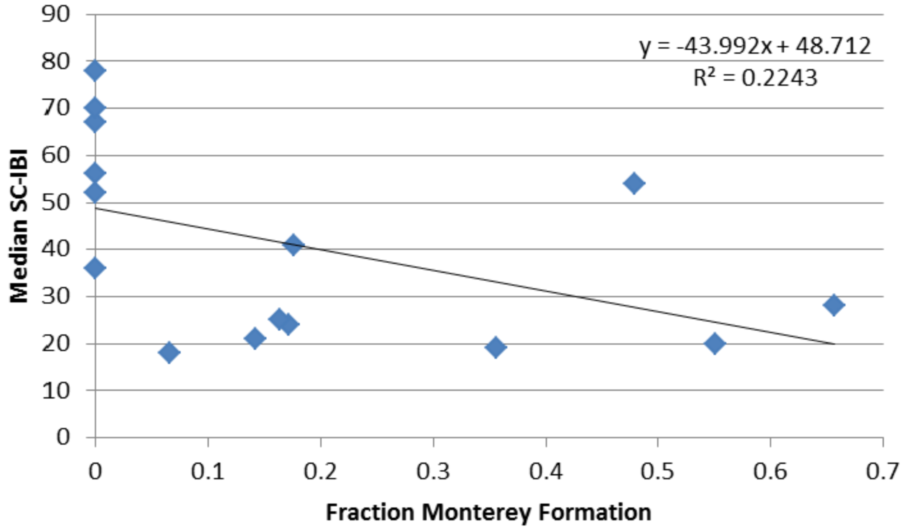


Figure 14. 22% of the variation in median specific conductivity is explained by the fraction of upstream exposures of the Monterey Formation at Heal the Bay sites.

Page 8-22 to 8-24

Comment (76): EPA's findings on the influence of upstream imperviousness on macroinvertebrate scores are flawed, because they do not address the confounding influence of upstream Monterey Formation. Higher density development and Monterey/Modelo Formation exposures co-occur in the northern headwaters of Malibu Creek. The EPA acknowledges that this spatial co-occurrence could confound analysis on page 8-19, but then ignores it. Again, the best way to isolate urban runoff impacts on water quality and IBI scores is to compare results from sites with urban development but no Monterey Formation rock either upstream or geographically coincident with urban development.

Comment 1-D76

8.3 Stream and Benthic Algal Data (Pages 8-33 through 8-38)

Page 8-33

Comment (77): The EPA's algal percent cover thresholds are inappropriate for these sites in this watershed. The EPA states that "the nutrient impairment listing for the Malibu Creek watershed is based primarily on algal coverage. The TMDL (USEPA, 2003) establishes thresholds of 30 percent coverage for floating algae and 60 percent coverage for mat algae." (Page 8-33) The EPA (2003) uses floating and benthic algal percent cover thresholds recommended by Biggs (2000), while ignoring this source's cautions on applying those thresholds as indicators of human impairment in watersheds with exactly the kind of marine tertiary sedimentary rock as the Monterey Formation. We argued in the report *Water Quality in the Malibu Creek Watershed, 1971-2010*, that Biggs (2000) specifically stated that these thresholds would not be met in catchments with significant amounts of Tertiary marine sediments, which can cause proliferations during low flows. We met with EPA staff working on this TMDL and presented them with this report in 2011, so this should have been investigated and considered when developing this section. The EPA ignored the warnings in Biggs (2000) that natural proliferations will occur in watersheds with Tertiary marine sedimentary formations like the Monterey/Modelo Formation, and instead continues to apply the 30% and 60% cover thresholds without giving any justification for dismissing Biggs (2000) caveats on geological sources such as this. **Comment 1-D77**

Page 8-33

Comment (78): The EPA erroneously cites Luce (2003) by saying "Malibu Creek has a generally intact riparian canopy." In fact, limited canopy cover should have been one of the stressors listed and investigated by the EPA, were they to have conducted a thorough assessment of stressors in accordance with CADDIS procedures. A box plot of canopy cover (Figure 15) copied from Luce (2003, Figure 5) shows that all Heal the Bay reference sites (the numbers preceded by an "R" in the figure below) are well shaded with canopy, while the sites used in this EPA TMDL (I1, I12 and I15 in the figure below) are among the four least shaded sites when minimum and median values are considered. Luce (2003, page 61) ends her discussion of stressor effects on macroinvertebrate community metrics by saying "maintaining canopy cover appears to be very important to protecting the BMI community in this system … protecting the riparian buffer zone from development and thereby providing canopy cover for the stream will help maintain a healthy BMI community in the stream." The TMDL gives no justification for ignoring Luce's findings on canopy cover. **Comment 1-D78**

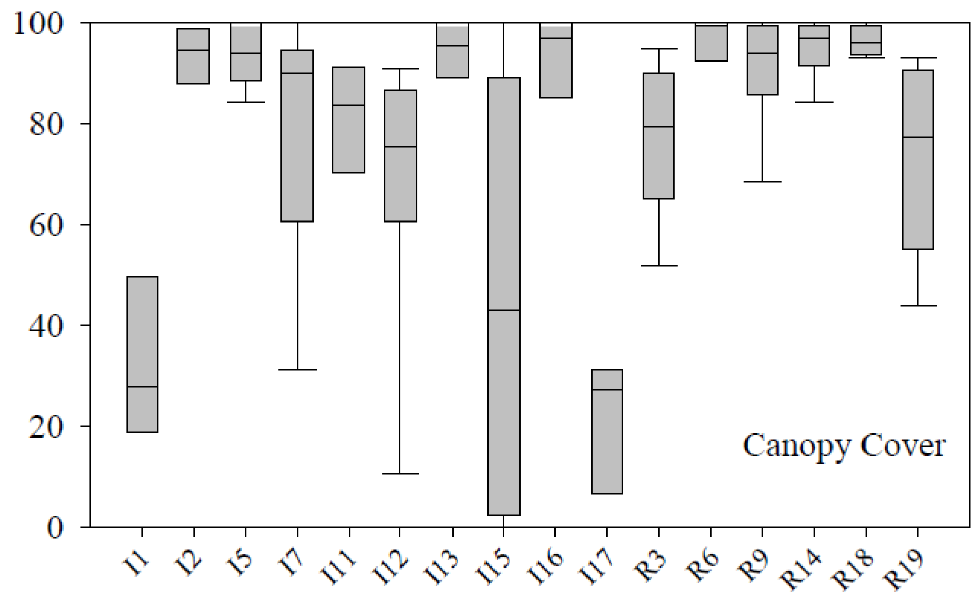


Figure 15. Canopy cover (%) at Heal the Bay reference (R) and impacted (I) sites (Luce 2003, Figure 5).

Page 8-33

Comment (79): The TMDL includes a finding from Busse et al. (2003) which says "At most sites, algal biomass was not limited by nutrients, but rather by light availability and water current," which is supported by the figure shown above (Figure 15). We have already shown that flow at Heal the Bay sites 1 and 12 are low or nonexistent most summers, and now we can see that canopy cover is minimal as well. The TMDL analysis of nutrient-algal linkages throughout fails to address other factors that are shown to affect algal growth in Malibu Creek by virtually every study on the subject cited in the TMDL.

Comment 1-D79

Page 8-33

Comment (80): We previously commented on the statement "Total nitrogen, total phosphorus, and total chlorophyll concentrations were all positively correlated with the proportion of upstream land covered by impervious surfaces (Busse et al., 2006)." We pointed out the confounding effects of impervious surfaces, development and the Monterey/Modelo Formation, which are spatially coincident in the northern headwaters. Busse et al. (2006) may have confounded the effects from impervious areas with the effects from the Monterey/Modelo Formation. Comment 1-D80

Page 8-34

Comment (81): This page includes the sentence "Given these studies, it is not clear if the existing nutrient TMDL targets – even if fully implemented – would be sufficient to significantly reduce algal coverage in Malibu Creek." First, these same studies also acknowledge other factors unrelated to nutrient levels that encourage algal growth in Malibu Creek (see our comments, above). Second, we provide substantial additional evidence that both algal growth and algal species composition is impacted by Malibu Creek's ionic strength and composition. Third, we would like to point out that the 2003 EPA has not been fully implemented, so it is not known whether those nutrient targets would have made differences in algal cover. The MS4 permittees have only had the nutrient TMDL incorporated in their permits as of December 2012 and have not had an opportunity to try to reduce nutrients from MS4s. LVMWD (2011) showed that annual median nitrate-N exceeds the 1 mg/L total N limit at 18 watershed monitoring sites and phosphate-P exceeds the summer limits at 40 sites in both developed and undeveloped areas. Comment 1-D81

Comment (82): LVMWD (2011) shows that while sites on Malibu Creek meet summer nitrogen targets, NO3-N concentrations on 11 of 32 sites on tributary streams do not meet the summer target. Malibu Creek median concentrations from 13 of 18 monitoring sites are not meeting the summertime phosphorus limit set by the 2003 TMDL. The report also showed that 22 of 33 sites in the northern tributaries were not meeting the phosphorus target, including three open space sites. The 2003 TMDLs have so far only been applied to one permit – that for Tapia WRF. Tapia has been incompliance with permits based on this TMDL. However, the Los Angeles County MS4 permit was just adopted. Nutrient limits should not be revised until MS4 permittees have a chance to meet those targets. The EPA conducted an intensive analysis for the 2003 TMDL, less than a decade ago, which concluded that the allocations presented would correct the problems. The EPA should allow the MS4 permittees the opportunity to meet these targets to see if by doing so, impairments are corrected. Comment 1-D82

Page 8-34

Comment (83): EPA relies on algal cover data from Heal the Bay and Busse (2003), but does not disclose significant differences in methods used by the two. Heal the Bay's algal percent cover measures are based on visual inspection with no objective measurement. Heal the Bay combines subsurface filamentous and diatom mats in their benthic "mat" estimate. Their floating algae estimate includes all algae present at the water-air interface. Visual estimates are notoriously unreliable, especially when depth, shading and surface water reflections make benthic cover or the lack of benthic cover more difficult to see. Since Heal the Bay also relies on volunteers for monitoring, inter-rater variability is also a factor affecting the reliability of data that may give erroneous impressions of temporal trend. In contrast, Busse's (2003) method of algal percent cover estimation followed the EPA Rapid Bioassessment Protocol using objectively defined transects and gridded buckets. We recommend that in the future EPA limit algal cover estimates to objective measures, such as those in the EPA RPB or the SWAMP Algae SOP[27]. Comment 1-D83

Page 8-34

Comment (84): Table 8-13 has an error. Site 12 is listed as "Malibu Creek below Cold Creek," but site 12 is between the Malibu Creek State Park bridge by the visitor center and Rock Pool. Comment 1-D84

Page 8-36

Comment (85): The EPA finds "An examination of all of the Heal the Bay data shows that there is almost no correlation between algal coverage and either inorganic N or inorganic P concentrations (Figure 8-21)." Without further analysis, the EPA decides that "instead total nutrient concentrations may be better at providing an indication of primary production." The EPA adds that, "Notably, 100 percent cover can occur at the lowest inorganic nutrient concentrations, while low cover is often found at high inorganic nutrient concentrations. In part, this may reflect control by light limitations and other factors; however, it also suggests that inorganic nutrient measurements may not provide a good indication of algal growth potential; instead total nutrient concentrations may be better at providing an indication of primary production." Further analysis using total N and total P collected simultaneously with reliable algal biomass and percent cover measurements should be undertaken to verify the unsupported EPA decision that the cause must then be some form of nutrients not measured. Because this finding is equally true of the TMDL's conclusions regarding nutrient runoff from natural sources, and if those sources are sufficiently high than nutrient levels in the creek will exceed those necessary to sustain maximum algal growth regardless of controls on human sources. Those limits are already exceeded in Malibu Creek for floating mat algal species such as *Cladophora glomerata* on the basis of known nutrient levels alone. Comment 1-D85

Comment (86): By suggesting that there must be species of N and P not analyzed that are responsible for alga cover when no relationship is found between algal cover and inorganic species ignore findings from EPA funded research. In a study of southern California reference stream condition, (Stein and Yoon 2007, page 23) found that "Neither chlorophyll-a nor algal percent cover was significantly correlated with any nutrient concentrations." Nutrient species included in their study included NH3, TKN, N03-NO2-N, TP, PO4-P, TOC and DOC. They did not find that algal biomass or percent cover were related to TN. Research by Stein and Yoon (2007) also indicated higher percent algal cover and larger natural algal biomass occur in southern California reference streams. (See additional comments made for TMDL page 3-2). Comment 1-D86

---

[27] Fetscher, A. E., Busse, L., Ode, P. R. 2009. Standard Operating Procedures for Collecting Stream Algae Samples and Associated Physical Habitat and Chemical Data for Ambient Bioassessments in California. California State Water Resources Control Board Surface Water Ambient Monitoring Program (SWAMP) Bioassessment SOP 002. (updated May 2010)

Pages 8-37 to 8-38

Comment (87): The EPA reports algal biomass as chlorophyll-a (mg/m^2) from the 2002 survey by Busse et al. (2003) and conclude that "Based on these analyses, the algae-related impairment in the Malibu Creek main stem has yet to be mitigated." 2003 was the year the EPA established the TMDL, so data collected for a report published in 2003 will have preceded the implementation of the TMDL and cannot be informative of conditions with an established TMDL. More recent data would have been more relevant. Though they do not say so in this section, we assume they compare results with the 150 mg/m^2 chlorophyll-a threshold based on BURCII/III and the CA NNE. **Comment 1-D87**

8.4 – Invasive Species (Pages 8-38 to 8-39)

Comment (88): The EPA considers only invasive species that may be niche competitors for benthic macroinvertebrates, but omits reference to the many invasive species that may limit macroinvertebrate abundance through predation, which would have been included had the EPA conducted a CADDIS assessment that included full stakeholder participation, as is described in the EPA CADDIS website.
Comment 1-D88

8.5 – Toxicity Data (Page 8-39 to 8-40)

Comment (89): The EPA cites work by Brown and Bay (2005)[28] who determined toxicity in Malibu Creek was most likely due to sulfate and other dissolved salts. Given this finding, it seems unreasonable that the EPA concluded that it is "most likely that IBI scores are responding primarily to urbanization and only to a lesser degree, if at all, to conductivity itself." The only way EPA can make this argument is to ignore the LVMWD report (2011) which shows that sulfate is the ion contributing the most to high conductivity in Malibu Creek watershed and that those concentrations are highest in the Monterey Formation headwaters, including in undeveloped sites. **Comment 1-D89**

Comment (90): The EPA also reports that LACDPW attributes occasional toxicity to volatile chemicals, but the EPA does not say how infrequently the mass emissions site detects any volatile organic chemicals. The Malibu Creek mass emissions site has exceedingly low detection rates for volatile and semi-volatile organic compounds – and has found no exceedances to more than couple a year out of hundreds of tests. **Comment 1-D90**

8.6 – Physical Habitat Information (Pages 8-40 to 8-43)

Comment (91): The EPA concludes that "biota in the main stem do not appear to be strongly limited by physical habitat condition alone. The EPA cites Isham (2005) who says "there was virtually no relationship between macroinvertebrate community quality and physical habitat quality in the presence of urban runoff." We contend that groundwater flow from the Monterey / Modelo Formation presents a similar stress to macroinvertebrates that urban runoff may in other areas. In this watershed, base flow from the Monterey/Modelo Formation has much higher specific conductivity and concentrations of sulfate and metals than does local urban runoff (LVMWD 2011). **Comment 1-D91**

---

[28] Brown, J. S., Bay, S. M. 2005. Organophosphorus pesticides in the Malibu Creek watershed. *SCCWRP Annual Report*, 2003-04: 94-102.

Section 9 - Linkage Analysis (Pages 9-1 to 9-38)

Page 9-1

Comment (92): The EPA concludes that "benthic macroinvertebrate communities in Malibu Creek and Estuary have been adversely affected, as shown by low bioscores," but we find this conclusion is not based on sound science. As stated earlier, assessment methods are inappropriate, reference site selection was inadequate and two of the three primary test sites used do not have perennial flow.

Comment 1-D92

9.2 List Candidate Causes (Page 9-3 to 9-6)

Comment (93): The EPA omitted many candidate stressors that local stakeholders would have known about if a full CADDIS process, which includes stakeholder participation, had been conducted. A short list of potential stressors we might have been able to contribute would have included the following: low flow, summer drying, summer pools, conductivity, concentrations of the major ions contributing to high conductivity (SO4, Mg, Ca, K, etc.), predation by invasive species, use of vector control chemicals throughout the length of Malibu Creek, altered flow (higher storm peaks, perhaps changes in summer low flow), etc. A larger stakeholder group would likely be able to generate a much longer list.

Comment 1-D93

Page 9-4

Comment (94): The EPA selects algae as a major stressor, saying "excess algal growth associated with nutrient enrichment has long been observed in Malibu Creek watershed," despite their own analysis finding no correlation between algal coverage and nutrient concentration, and despite the studies they cite that also found no correlation. Luce (2003) found no significant correlation in benthic macroinvertebrate metrics with microalgal cover for six metrics (taxa richness, percent dominant species, EPT richness, Sensitive EPT index, percent intolerant species, and percent shredders) and found positive but weak correlation with EPT index and percent filterers. Rather, "conductivity, embeddedness and canopy cover were the factors most commonly related to BMI metrics." Another study with this conclusion is the SCCWRP study of natural loadings in southern California reference streams (Stein and Yoon 2007), which found "Neither chlorophyll-a concentration nor algal percent cover was significantly correlated with any nutrient concentrations." Comment 1-D94

Comment (95): In the same paragraph on page 9-4, the EPA says "the proliferation of algae can result in loss of invertebrate taxa through habitat alteration." Yet the EPA provided no evidence that habitat alteration resulting from algal growth has resulted in loss of invertebrate taxa. In fact, the TMDL states in a number of locations that algal measures did not correlate with benthic macroinvertebrate measures. Nor does the TMDL anywhere consider the potential benefits of instream algal cover for benthic macroinvertebrates, or the thermal insulation provided by floating algal mats. This thermal benefit is important in the lower creek, where temperatures often approach the thermal maximums of endangered steelhead trout. The TMDL does not address this issue. Comment 1-D95

Page 9-5

Comment (96): Figure 9-1 should be revised to include arrows from Natural Geology to Organic Toxics, Elevated Nutrients, and to elevated TSS and Turbidity. Ionic Strength, Non-Perennial Flow and Pesticide Treatments should be added additional Proximate Stressors. Petroleum source rocks could be contributing natural petroleum compounds (R. Churchill, CA Geological Survey, personal communication). The Monterey Formation does contribute elevated concentrations of phosphorus, and experiments have shown that the rock can leach substantial concentrations of nitrogen compounds (LACSD 1996)[29]. Marine shales decompose to silts and landslides are common in steep Modelo Formation terrain in Malibu Creek's northern headwaters. The figure should be amended to include the entire list of potential stressors we recommended. For example Natural Geology (and precipitation) can result in a hydrologic pattern of seasonal drought, which can cause eutrophication in drying reaches and pools, resulting in algal growth, low dissolved oxygen, and concentration of ion toxicity through evaporative loss. **Comment 1-D96**

Page 9-6

Comment (97): A.3 Reduced DO from Excess Algal Growth of Oxygen-demanding Wastes: While the EPA states that "Algal mats may result in eutrophic conditions where dissolve oxygen concentration is low." The 2003 EPA TMDL concludes "There is no demonstration that algae in these reaches is affecting dissolved oxygen concentration." This TMDL concludes "The excess algal growth does not appear to affect DO concentrations in the creek." So while "algal mats may result in eutrophic conditions," the EPA concludes on page 9-15 that "impaired sites in Malibu Creek show average dissolved oxygen concentrations that are similar to reference sites." We remind the EPA that differences in canopy cover between reference and test sites will result in differences in DO, as will the loss of flow during summer months at two of the EPA's three test sites. **Comment 1-D97**

Comment (98): A.4 Toxicity from metals or Organic Toxics: Local data and studies suggest that if there is toxicity, the source is most likely natural. When EPA reports the results of Brown and Bay (2005) in this section, they should repeat the conclusion that the toxicity was probably caused by elevated ionic concentrations such as sulfate, which occurs naturally from geologic sources. The EPA states that "stormwater in Malibu Creek often has toxicity," yet later say "occasionally" (page 9-16). Those toxicity hits reported by the EPA in this TMDL were either from ionic concentrations or pesticides in the most densely developed northern tributary (Brown and Bay 2005) or at the mass emissions station testing due to undetermined causes. Toxicity very well may result from sulfate concentrations, which exceed Basin Plan standards in those parts of the watershed draining the Monterey/Modelo Formation, as shown in Figure 16, below (from LVMWD 2011). **Comment 1-D98**

Comment (99): In addition to an analysis of the potential for toxicity effects on macroinvertebrate communities, the TMDL would be greatly improved if the EPA would apply the Ionic Strength module from CADDIS to their analysis of potential stressors. (See comments for pages 9-8 to 9-9 and 9-16 to 9-18.) **Comment 1-D99**

---

[29] County Sanitation Districts of Los Angeles County (CSDLAC), 1996, *Mineral Leaching Study Calabasas Landfill*, Whittier, CA

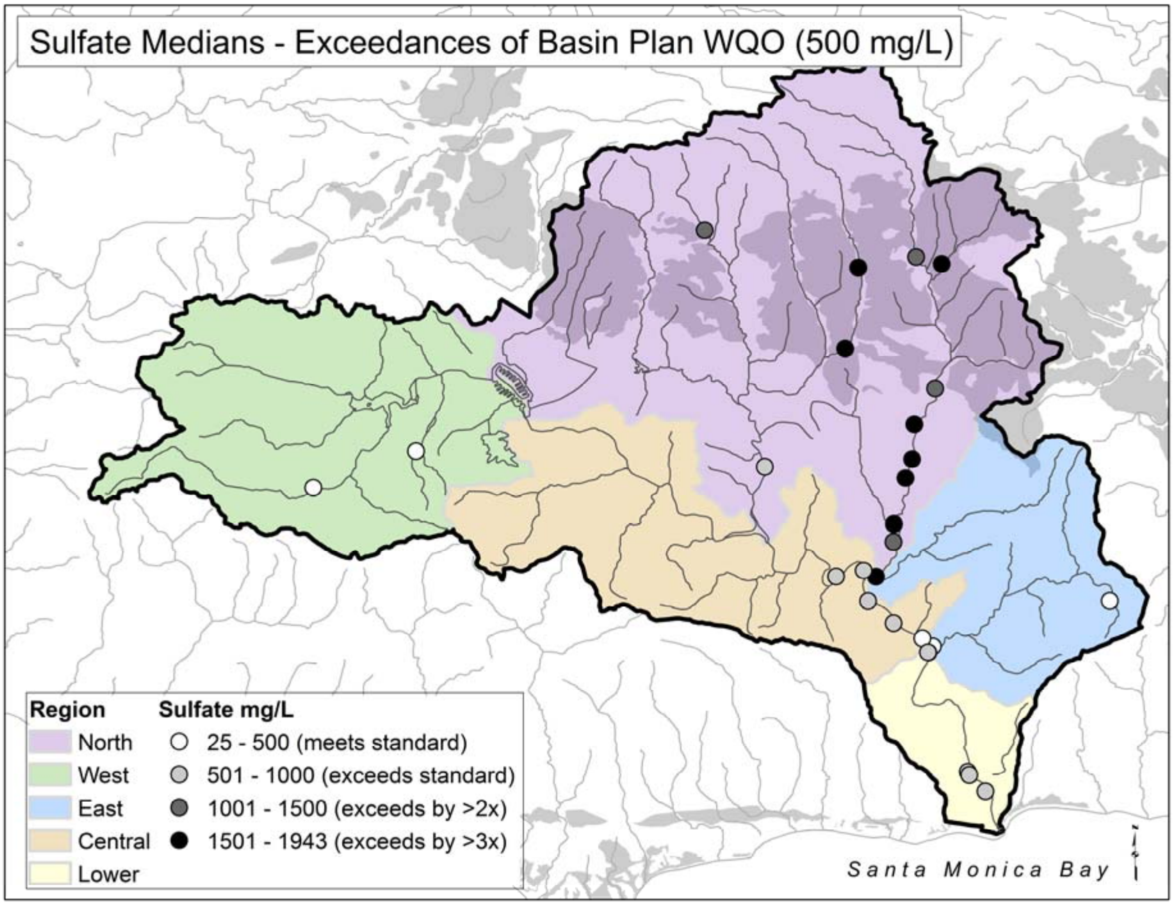


Figure 16. Median sulfate concentration by site. Note that the three sites farthest NE are in undeveloped headwaters.

9.2.2 Major Stressor Sources (Pages 9-6 to 9.8)

Pages 9-6 to 9-7

Comment (100): B1. Altered Hydrology - Please incorporate comments on flow given for Section 6.
Comment 1-D100

Page 9-7

Comment (101): B2. Channel Alteration - The description given in this section misses the most substantial channel alteration in the Malibu Creek main stem – the 120-foot Rindge Dam. There is also a smaller dam within Malibu Creek State Park at Century Lake, which was built for recreational purposes early in the last century. A third dam is Malibou Lake Dam which marks the upstream end of Malibu Creek. These are significant alterations, but Rindge Dam is full, so does not trap sediment, while Malibou and Century Lake dams do continue to trap sediment. Heal the Bay Stream Walk data for Malibu Creek main stem indicate additional alteration is limited along Malibu Creek proper. **Comment 1-D101**

Page 9-7

Comment (102): B3. Fire Impacts - The EPA incorrectly states "Although fire is a natural phenomenon in chaparral landscapes, human intervention to suppress fire events and magnitudes can lead to less frequent, but more intense and damaging fires." This accurately describes western states fire management generally, but general fire management does not apply here. In the Santa Monica Mountains, the natural fire regime is patchy fires of low frequency. The Santa Monica Mountains National Recreation Area Fire Management Plan[30] states "Significantly, research indicates that in many areas, including the Santa Monica Mountains, fire return intervals have shortened in association with increasing settlement and human activity … Thus, management actions based on the assumption of the age-mosaic model that fire has been excluded from shrublands may be counter to the goal of maintaining long-term biodiversity in chaparral and coastal sage scrub ecosystems." It is incorrect to assume that fire has been excluded. What changed with increasing populations are accidental and intentional fires started by humans during Santa Ana wind conditions that cause catastrophic fires. The frequency of these fires has even decreased the population of plant species that require fire by re-burning areas before they have rooted deeply enough. **Comment 1-D102**

9.3 Analyze Evidence and Characterize Causes (Pages 9-8 to 9-30)

Pages 9-8 to 9-9

Comment (103): The EPA lists causal pathways for their selective set of potential stressors. The EPA should add the following to the following from their list of four causal pathways, and should add the fifth potential causal pathway: **Comment 1-D103**

a. Reduced habitat quality from excess algal growth can also occur by natural water quality derived from geologic sources, as was demonstrated by Stein and Yoon (2007).
b. Reduced dissolved oxygen can also result from low flow and no-flow conditions (stagnation) or from natural excesses in algal growth due to a combination of geologically enriched water quality and stages of stagnation and drying.
c. Toxicity can also derive directly from conductivity (affecting osmotic regulation) and more particularly from particular ions. Mount et al. (1997)[31] found the relative toxicity of natural ions to be $K > HCO_3 \approx Mg > Cl > SO_4$. Each of these is elevated in Malibu Creek watershed to levels as high or higher than those found to be toxic to macroinvertebrates downstream of mountain top coal mining in West Virginia (Pond et al. 2008)[32].
d. "Some soil types and geologic formations are natural sources of salts, and certain anthropogenic activities may mobilize and transport those salts to freshwater streams and rivers. Natural geologic variability among neighboring watersheds may result in profound—yet natural—differences in ionic strength of associated streams, especially in arid regions, such as the southwestern U.S. Causal assessors should characterize soil type and geology if ionic strength is

[30] http://home.nps.gov/samo/parkmgmt/upload/Final_FMP_07update.pdf
[31] Mount, D. R., Gulley, D. D., Hockett, J. R., Garrison, T. D., Evans, J. M. 1997. Statistical models to predict the toxicity of major ions to *Ceriodaphnia dubia, Daphna magna, and Pimephales promelas* (fathead minnows), *Environmental Toxicology and Chemistry*, 16(10): 2009-2019.
[32] Pond, G. J., M. E. Passmore, F. A. Borsuk, L. Reynolds and C. J. Rose. 2008. Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools. *Journal of the North American Benthological Society*, 27(3): 717-737.

> being considered as a stressor, particularly if dryland salinity, mining, oil drilling, or irrigation occur in the watershed."[33]

Pages 9-9 to 9-37

Comment (104): We question the EPA's decisions on temporality. Temporality is one of the tests for the strength of the evidence. It is tested by checking whether the purported cause preceded the effect (impairment). In general, throughout this section, temporality is considered validated based on assumptions that pre-development levels met regulatory limits, which may not have been the case. The EPA provides no data to support those assumptions, so EPA decisions on temporality are questionable. For example, the evidence for temporality of reduced DO in Malibu Creek is considered consistent "because of the area's history of urban growth" (pages 9-26 and 9-27). But "urban growth" is not evidence that the "cause preceded the effect." There is no evidence that the effect (low DO) had a temporal component, because dissolved oxygen values from the pre-development era are not provided. Given the fact that many sections of Malibu Creek are non-perennial now, and given that the EPA says summer flows are higher during the pre-development than post development era, and given the increased likelihood of low dissolved oxygen in drying streams, we believe it is likely that Malibu Creek experienced low DO in places even in the pre-development era. This argument applies not only to dissolved oxygen, but to the degree of pre-development sedimentation, and to all potential stressors considered in relation to the Modelo Formation. The EPA does not have sufficient pre-development data or any pre-Monterey/Modelo Formation data to support many of the temporality claims made.

Comment 1-D104

Page 9-9 to 9-10: A1. Reduced Habitat Quality from Excess Sedimentation, Malibu Cree..

Page 9-9

Comment (105): The EPA incorrectly uses the historic filling of the pool behind Rindge dam as evidence of "excess sedimentation." "Excess sedimentation also has been demonstrated by sedimentation in the Lagoon and the filling of the pool behind Rindge Dam such that it was 85 percent filled by 1949 (Ambrose and Orme, 2000)." Given that there was very little development in the watershed prior to the 1970s and 1980s, sedimentation rates between Rindge dam's construction in 1929 and filling by 1949 would not be attributable to development. The rate of sedimentation filling Rindge Dam may not have been in "excess" of that which is natural to the watershed. It may instead be indicative of the natural rate of sedimentation. Comment 1-D105

Comment (106): The EPA incorrectly uses Heal the Bay's Stream Walk data to justify a decision to support a sedimentation impairment in Malibu Creek. The EPA states "Furthermore, Heal the Bay's Stream Walk program reported that 21.29 miles of 68 surveyed stream miles were impaired by excess fine sediments." Heal the Bay's Stream Walk GIS data shows no fine sediment alteration in the entire length of the Malibu Creek main stem. They do show a large amount of "fill" in the upper tributaries. GIS data for Malibu Creek lists features with lengths that would constitute 16% of the length of the creek, but 12 of the 27 listed alterations are "loose boulder", 4 are "natural vegetation," 1 is "fencing," 6 are "concrete wall" or "concrete pier" (at bridges), one is a concrete boulder and one is asphalt. We do not see evidence in this data to support a designation as impaired for sedimentation. Comment 1-D106

[33] http://www.epa.gov/caddis/ssr_ion_wtl.html

Comment (107): The EPA cites only one bioassessment report (Aquatic Bioassay) for the sediment information included in the physical habitat assessment, while six years of LVMWD bioassessment reports (including physical habitat data in Excel format) and five years of Los Angeles County bioassessment reports were provided to the EPA for the development of this TMDL. The TMDL provides no justification for not including these data in its analysis. Comment 1-D107

Page 9-10

Comment (108): The EPA has provided insufficient local data to support the conclusion that "sedimentation co-occurs spatially with impairment." Heal the Bay Stream Walk data is inappropriate for the task. One of the nine goals for the program[34] was to "identify areas that are contributing to sediment loading in the watershed," but they were not assessing in-stream habitat. Other goals were to look for illicit discharges, barriers to fish passage and stream bank alteration. The Stream Walk data is inconclusive. The only other evidence that "sedimentation co-occurs spatially with impairment" provided by the EPA is an unfounded claim that it is a "well documented fact that sedimentation has long been present in the watershed, providing evidence for temporality." If it is well documented, then the studies and data should be cited, rather than relying solely Heal the Bay's Stream Walk data. Not only is there insufficient data to support the conclusion that there is a sediment impairment and that sedimentation is limiting bioassessment scores, but the EPA admits "the biological gradient evidence is weak, because the physical habitat scores are generally acceptable and do not appear to correlate with the SC-IBI scores." Comment 1-D108

Pages 9-11 to 9-14: A2. Reduced Habitat Quality from Excess Algal Growth

Page 9-11

Comment (109): The first paragraph in this section has PO4-P, which is incorrect. It should be PO4-HPO4, which is what Heal the Bay Stream Team measures. (See comments for pages 7-14 to 7-21. Comment 1-D109

Comment (110): The EPA suggests that "available information on total N and total P concentrations suggest that the totals (which include organic forms) are much higher than the inorganic nutrient concentrations," but they provide no data to support this conclusion. We have compared TN and NO3-N concentrations from our data at site R-13 (HtB site 15) and found that NO3-N concentrations are, on average, 98% of TN concentrations. This result does not rule-out instream conversion of organic N to inorganic forms, but it does show that nitrate is the predominant form of nitrogen at this location. A comparison of phosphorus data shows that TP concentrations average about 18% higher than PO4-P. But phosphorus is abundant from geologic sources, both in soluble form and in native sediments derived from native, phosphatic parent rock, as demonstrated in our report (LVMWD, 2011, previously cited). The establishment of phosphorus targets in the draft TMDL seems arbitrary, both in the target level selected (which is based on general guidance as opposed to actual native background P levels, and also in light of the TMDL's conclusion that nitrogen is the limiting nutrient of algal growth in Malibu Creek.
Comment 1-D110

Comment (111): The EPA states that "NOx-N concentrations are clearly elevated at the downstream station, MC-1, downstream of the Tapia WRF, while concentrations upstream of Tapia at MC-12 are not

[34] Malibu Creek Watershed Stream Team Pilot Project: Shattering the Myths of Volunteer Monitoring, undated, Heal the Bay.

much different from reference sites." First, the data should be presented seasonally because of Tapia WRF's seasonal discharge prohibition, but are not. Had that been done, the data would clearly show that nitrate levels below Tapia WRF in the summer are substantially less than in winter. Secondly, the TMDL fails to consider that these differences may be the result of different nutrient spiraling lengths, and thus the degree of nutrient retention at the two sites being compared. Recall that site MC-1 dries up most summers, so Heal the Bay data from that site will naturally have nutrient retention as the stranded pool stagnates. (See related comments for Page 7-2 through 7-7). While some of the bioassessment reach at MC-12 dries or becomes isolated pools each summer, water quality assessment site MC-12 tends to have year round flow.

Comment 1-D111

Comment (112): In addition to our comment above, the biological gradient for NOx-N effects on algal growth is reverse of that which would be needed to support a decision that algae increases with increasing NOx-N. The EPA notes that "NOx-N concentrations are clearly elevated at the downstream station, MC-1, downstream of the Tapia WRF, while concentrations upstream of Tapia at MC-12 are not much different from reference sites." But the TMDL fails to disclose evidence contrary to its proposed nutrient-algae linkage from these two sites, specifically that the average monthly benthic algal percent cover exceeds the 60% standard ten months out of the year at station MC-12, but exceeds it only five months out of twelve at site MC-1 (Figure 17, below.) So while MC-1 may have higher nutrient concentrations than MC-12, it has lower percent cover for benthic algae. Nor does the TMDL disclose other evidence contrary to its findings on nutrient-algal linkages provided in Stein and Yoon (2007), who concluded that "neither chlorophyll-a concentration nor algal percent cover was significantly correlated with any nutrient concentrations." Beyond contradicting the TMDL's linkage conclusions, this study helps to explain the EPA's finding on page 9-12 "despite lower NOx-N concentrations upstream of Tapia, SC-IBI scores upstream of Tapia are not significantly different from scores downstream in three separate data collection efforts (Table 9-2). In fact, scores at the Heal the Bay downstream site MC-1 have been higher than those at the upstream MC- 12 site since 2005." In short, the weight of the evidence does not support at all the TMDL's assertion that "strong evidence" links excess nutrients, excess algal growth and reduced habitat quality for benthic macroinvertebrates in Malibu Creek, since algal growth does not correlate with nutrient concentration and SC-IBI scores do not decrease with increases in algal cover.

Comment 1-D112

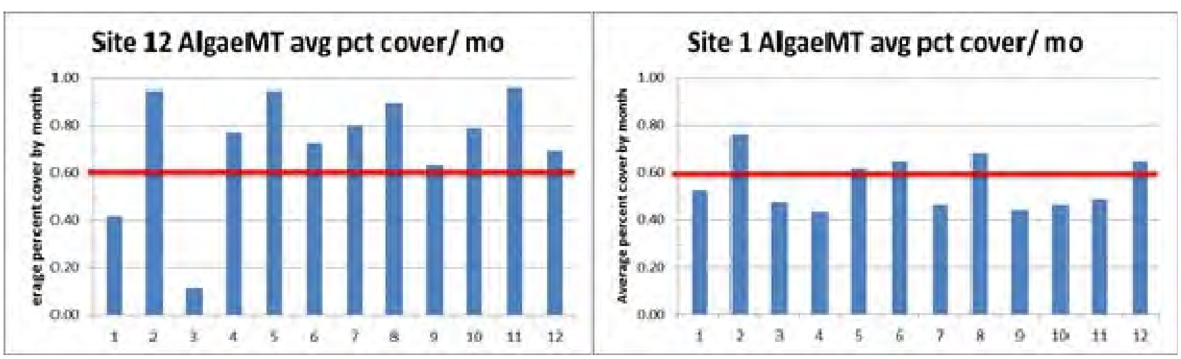


Figure 17. Average monthly percent benthic algal cover, sites MC-12 and MC-1, where MC-1 has higher nutrient concentrations.

Comment (113): The analysis of nutrient concentrations conducted by the EPA inappropriately applied annual mean concentrations, when seasonal means would have been more appropriate. Nutrient concentrations are elevated during the winter period when Tapia is discharging, but the TMDL fails to acknowledge that lower levels of insolation and higher flows reduce algal growth regardless of nutrient levels, and that most nutrients are swept to sea, with limited contact time in comparison with summertime conditions of low flow and lagoon closure. An analysis of nutrient levels limited to the discharge prohibition period (April 15 to November 15) would have given a clearer picture of the nutrient condition affecting algal growth. But the EPA did not include any seasonal analyses in the TMDL.

Comment 1-D113

Page 9-12

Comment (114): The EPA erroneously states "Although the nutrient limits proposed in the TMDL appear to have been achieved the algal density targets have not." We assume the EPA means that Tapia WRF has been meeting TMDL nutrient limits, but it is not correct to say that the TMDL nutrient limits have been achieved in the watershed. LVMWD (2011) found 11 stations upstream of discharge with annual median NO3-N concentrations not meeting the limit. MS4 permittees have only just received a new permit that incorporates the 2003 Nutrient TMDL. (See also comments on pages 8-34 and 8-37 to 8-38.)

Comment 1-D114

Comment (115): The EPA states that "sites exhibiting excess algal growth also exhibit SC-IBI scores lower than reference sites." We remind the EPA of its own caution, found in the draft TMDL, that spatial correlation does not demonstrate causation. This is why the JPA, in finding spatial correlations between the Monterey Formation and phosphorus and other water quality parameters, took the additional steps of directly testing both the rock itself from local exposures, and testing actual runoff from these exposures during and immediately following rain, and comparing these results with direct testing of urban runoff using data collected during the same rain event (LVMWD Report No. 2475.00). In this way we were able to show evidence directly linking these parameters in surface water quality to their geologic source. In contrast, the draft TMD's analysis purporting to link IBI scores to nutrient levels is based on correlative evidence alone, correlations that ignore the many differences between reference and test site locations: canopy cover, proximity to the more temperate coast, stream temperature, flow permanence, slope, upstream percentages of the Monterey Formation, etc.

Comment 1-D115

Page 9-13

Comment (116): The EPA refutes the LVMWD (2011) claim that pH and DO generally fall within regulatory limits using weak arguments. The EPA claims that "high gas exchange rates are expected in shallow streams…" But Malibu Creek is not generally a shallow stream in summer, so high gas exchange rates would not be expected. It is more often a string of deep pools separated by dry reaches or very low flow, when present. Stagnant pools and puddles in dry stream beds will not have high gas exchange rates. And, the EPA admits on the next page that "excess algal growth in Malibu Creek does not appear to strongly affect DO concentrations in the creek." The low DO measurements at Start Pool are another matter, and an apparent exception among pools which deserves further investigation. Low DO measurements were not found in another pool of similar size found upstream of this site and monitored simultaneously as Start Pool, suggesting that some other, site-specific factor is responsible for either the low DO values in Start Pool or the higher DO values in the upstream pool.

Comment 1-D116

Comment (117): The EPA argues that "median IBI scores greater than 30 only occur at sites with average nitrate-N concentrations less than 1 mg/L, suggesting that nutrient impacts may be depressing benthic biotic health in the watershed." They refer to their argument based on TMDL Figure 8-10, page 8-20, which we found confounded upstream urban development with upstream Monterey/Modelo

Formation. Nor does the TMDL's argument account for the fact that there are also sites with lower average nitrate concentrations that have median SC-IBI scores less than 30. Comment 1-D117

Comment (118): The TMDL provides no evidence that nitrate itself impairs macroinvertebrates at the levels found in Malibu Creek, nor are we aware of any evidence in the scientific literature of impacts at these levels. The literature does provide examples where nitrate can increase algal cover, but site-specific studies in Malibu Creek have found no correlation between nutrients and algal cover (Stein and Yoon 2007) in natural streams, let alone any non-correlative evidence of a direct linkage. The Malibu Creek main stem is primarily natural, despite 20% development and 6.95% impervious area in the upstream watershed. (See our comments to Page 8-20, Figure 8-10.) Comment 1-D118

Comment (119): The EPA states in an argument that there is a macroinvertebrate biological gradient related to nutrient concentrations, but that "the biological gradient with respect to the Tapia WRF discharge is less clear." LVMWD (2011) analyzed a long term data set of visual observations of percent algal cover at stations upstream and downstream of Tapia discharge and found no obvious increase in algal cover in the downstream direction. On the contrary, in later years, algal cover appeared to be slightly less in the downstream direction relative to the upstream direction. This is further evidence that algal cover does not correlate well with nutrients. The EPA makes a statement showing agreement with our findings, but suggests that the "long-term Tapia discharge since 1965 undoubtedly caused … nutrient increases in the system, which would directly impact the benthic community over time." It is unlikely nutrients would build up continuously over that time frame in a stream such as Malibu Creek, which transitions from summertime flows of less than 1 cfs to flows in excess of 100 cfs during rain events, every winter, every year, as shown by county streamgage records. Comment 1-D119

Comment (120): The EPA states "Although the biological gradient and the Tapia discharge is tenuous, this does not include the evaluation of the long term impact of Tapia WRF's discharge in the watershed. The long-term Tapia discharge since 1965 undoubtedly caused to [sic] nutrient increases in the system, which would directly impact the benthic community over time." The suggestion that Tapia WRF's discharge has caused long-term nutrient retention in the creek is unsubstantiated and unsupported by any evidence in the TMDL. The EPA's own time series evaluation (TMDL page 7-16, figure 7-11) showed no summer season increases over time, nor does LVMWD (2011). Comment 1-D120

Comment (121): We are at a loss to explain the TMDL's certainty that nutrient levels are linked to algal cover in Malibu Creek, when none of the studies it cites found any conclusive evidence for it. No significant correlation was found between nutrient concentrations and algal cover by Stein and Yoon (2007). No significant correlation has been found between macroalgal cover and macroinvertebrate metrics by Luce (2003). Thus, we should expect no significant correlation between nutrient concentrations and macroinvertebrate metrics. The suggestion nutrients are related to macroinvertebrate impairment based on a reading from Figure 8-11 (Page 8-21) that there are no passing scores when nitrate-N concentrations are greater than 1.0 is a tenuous argument because of the confounding factors not taken into account (see our earlier comments), and because many sites with less than 1.0 mg/L nitrate-N also had low IBI scores. Comment 1-D121

Comment (122): A4. Toxicity from Metals or Organic Toxics, should have been "Ionic Strength." This is a substantial oversight in light of the following.

Comment 1-D122

a. EPA CADDIS contains modules on thirteen candidate causes of impairment, including one titled "Ionic Strength." We think the EPA pursued the Toxicity from Metals and Organic Toxics in order to address our alternative explanation – supported by substantial evidence LVMWD (2011) and this review - that naturally elevated high conductivity water and the high concentrations of ions in that water are the likely causes of benthic macroinvertebrate impairment in Malibu Creek watershed.
b. Toxicity was an inappropriate candidate stressor to consider in the evaluation of elevated ion concentrations and conductivity. We argue that ionic concentrations from the Monterey/Modelo Formation does cause lethal or reproductive toxicity in the sense of response to time-limited laboratory testing, but that over time, the high ionic concentrations draining the Monterey/Modelo Formation headwaters will extirpate species that have not adapted to these conditions.
c. Kefford et al. (2007)[35] investigated the salinity tolerances of early life stages of native South African macroinvertebrates, and found that eggs and hatchlings had salinity tolerances ranging from 4% to 88% of their older life stages.
d. Hassell et al (2006)[36] investigated sublethal effects of increased electrical conductivity on two *Ephemeroptera* and one *Diptera* species, and found that growth rates were reduced and time to emergence was delayed by 15 to 88% with increased salinity, and that these delays could influence those populations.
e. In a study of macroinvertebrates along a salinity gradient in canal habitat in the Netherlands, Peeters et al. (2009)[37] found that sub-toxic trace metals concentrations explained 8.6% of the variation in macroinvertebrate community structure.
f. Acute and chronic thresholds have been developed for some ions for test organisms, such as Ceriodaphnia, but we found no studies of toxicity or sub-toxic effects on macroinvertebrates native to southern California. Studies of macroinvertebrate communities from Kentucky, Virginia, West Virginia, and Pennsylvania have shown that conductivity explains the most variance in commonly used benthic assessment metrics (Pond et al. 2006). Anticipating the counterargument that macroinvertebrates in the Appalachian region have evolved and are adapted to very low conductivity streams, the same can be said of macroinvertebrate communities adapted to the lower conductivity streams in the So Cal IBI reference streams. There is no reason to expect that these species would fare as well in the very brackish waters of Malibu Creek, and there remains a strong correlation between ionic strength and IBI scores in

[35] Ben J. Kefford, Dayanthi Nugegoda, Liliana Zalizniak, Elizabeth J. Fields and Kathryn L. Hassell. 2007. The salinity tolerance of freshwater macroinvertebrate eggs and hatchlings in comparison to their older life-stages: a diversity of responses, *Aquatic Ecology,* 41(2): 335-348.
[36] Hassell, K. L., Kefford, B. J., Nugegoda, D. 2009. Sub-lethal and chronic salinity tolerances of three freshwater insects: *Cloeon* sp. and *Centroptilum* sp. (Ephemeroptera: Baetidae) and *Chironomus* sp. (Diptera: Chironomidae), *the Journal of Experimental Biology*, 209: 4024-4032.
[37] Peeters, E.T.H.M., Gardeniers, JJP, Koelmans, AA. 2000. Contribution of trace metals in structuring in situ macroinvertebrate community composition along a salinity gradient, *Toxicology and Chemistry,* 19(4): 1002-1010.

the watershed even with anomalous sites included that the TMDL focuses on to argue against this linkage with ionic strength.

Comment (123): The EPA's own CADDIS guidance for the Ionic Strength module acknowledges that increased ionic concentrations will often result in "shifts in community composition, rather than mortality" as the following passage from the CADDIS website indicates: "There is debate among scientists as to the exact mechanisms responsible for toxicity associated with ionic strength. Toxicity due to ionic strength could result from disruption of organisms' osmotic regulation processes, decreases in bioavailability of essential elements, increases in availability of heavy metal ions, increases in particularly harmful ions, changes in ionic composition, absence of chemical constituents that offset impacts of harmful ions, a combination of the above, or other as yet unknown mechanisms. In some instances (perhaps the majority), increased ionic strength causes shifts in community composition rather than mortality; thus, specific conductivity, salinity, and TDS levels may be associated with biological impairment and yet be below mortality thresholds."[38] In short, the draft TMDL author's reliance on toxicity test results in discounting impacts from high ionic strength ignores strong counterarguments found in EPA's own guidance documents. Comment 1-D123

Page 9-17

Comment (124): The EPA acknowledges that "conductivity measurements appear higher in impaired sites than in reference sites," and then cites Luce's (2003) hypothesis that high conductivity may be related to elevated phosphate. It may be related, but it is a minor contributor of ionic strength in Malibu Creek and it is not the reason for Malibu Creek's high conductivity. Specifically, LVMWD (2011) analyzed major ions draining the Monterey/Modelo Formation and found that the major anions were sulfate, bicarbonate and chloride and the major cations were calcium and magnesium. We are unaware of any study or evidence that urban runoff can account for sulfate levels in excess of 500 mg/L in Malibu Creek's main stem, let alone levels of 1,500 mg/L in its northern headwaters. There is no plausible mechanism or evidence of an urban source of sulfate at these concentrations nor of any of Malibu Creek's major ion levels. Comment 1-D124

Comment (125): As mentioned in the general comments for TMDL Section 8, Mount et al. (1997) gave the relative toxicity of major ions as K>HCO_3 ≈ Mg>Cl>SO_4. While the Basin Plan has no water quality objectives for potassium, bicarbonate or magnesium, the Basin Plan does have aquatic life standard for chloride (230 mg/L four day average continuous) and a standard for sulfate (500 mg/L), both of which are exceeded in Malibu Creek watershed. Of the five major ions studied in Mount et al. (1997) that can impact benthic macroinvertebrates, four of them are found at elevated concentrations in Malibu Creek. Comment 1-D125

Comment (126): In basing its finding of benthic macroinvertebrate community impairment on comparisons of IBI scores in Malibu Creek with those found in waters of lower ionic strength, the TMDL should acknowledge that the state has not yet been able to find reference sites with high enough conductivity to model expectation for or adequately define impairment threshold in streams with conductivity as high as are found in Malibu Creek. This is a significant oversight in the draft TMDL, affecting virtually all of its findings on both the evidence for impairment and its conclusions on probable major stressors. To demonstrate this, the box plot below is from the October 17, 2012, presentation by

[38] http://www.epa.gov/caddis/ssr_ion_wtl.html

the Biological Objectives Technical Team to their Scientific Advisory Group, shows the range of conductivity from sites in the reference pool as box and whiskers, as well as conductivity from a site on the Santa Clara River.[39] The slide on page 29 of the PDF PowerPoint (Figure 18) shows that the set of reference sites for this region includes conductivity values only as high as about 1,300 µS/cm (box, whiskers and white box for outlier), while the conductivity for the test site on the Santa Clara River is about 2,300 µS/cm (the red dot). According to the CADDIS method, the test site is scored with a + to indicate that it is a plausible candidate cause since its conductivity is above the 95th percentile of conductivity at reference sites. The same CADDIS test applied in Malibu Creek would also show that conductivity is a potential stressor no less plausible (and in our view likely) candidate cause than nutrients or algal growth.

Comment 1-D126

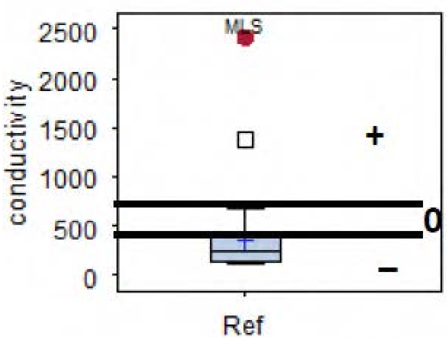


Figure 18. Conductivity at Santa Clara River test site (red dot) relative to reference site conductivity, showing 75th and 95th percentile lines and CADDIS scoring values for intervals relative to those lines. The plus sign (+) indicates that conductivity is a plausible stressor.

Comment (127): The EPA cites an exception to the general trend of lower SC-IBI scores with increasing conductivity with the single site, Ch-6, in the Monterey/Modelo Formation headwaters. We have several arguments against this. First, Ch-6 has advantages that other sites do not, such as riparian cover, slope>1%, and possibly year-round flow. Secondly, LVMWD (2011) found that while Monterey/Modelo Formation tributary streams had generally similar specific conductivity, ion concentrations varied by stream. We found, for example, that chloride concentrations increased in streams to the west. Phosphate ion concentration increases in streams to the east, and selenium concentrations may do the same. It is unknown why the Ch-6 median SC-IBI score is passing (>40), but the scores are significantly lower than at other reference sites and do sometimes fail. LV-9 fails about half the time, has high conductivity, but lower slope and less canopy cover, yet it is also a reference site in the Monterey/Modelo Formation. This site should be included as reference indicative of what scores Malibu Creek might attain.

Comment 1-D127

Page 9-18

Comment (128): A5. Invasive Species - We concur with the EPA in their evaluation of the limitations of the SC-IBI. Specifically, EPA notes that essentially the same score was attained by a site when the New Zealand mudsnail constituted 3% of the sample as at another time when the invasive snail constituted 81% of the sample. We suggest that it is very likely that the SC-IBI is also limited in its ability to assess

39 http://www.waterboards.ca.gov/plans_policies/docs/biological_objective/101712_meeting/seven_caddis_san_diego.pdf

benthic macroinvertebrate composition in Malibu Creek, which is at an extreme end of the natural conductivity gradient. Comment 1-D128

Pages 9-19 to 9-20: B1. Altered Hydrology

Page 9-19

Comment (129): The EPA claims that irrigation with imported water is the reason tributary streams that were once non-perennial are now perennial. Please see our comments in Section 6 in addition to those below. Comment 1-D129

Comment (130): The EPA claims that "all the main reaches from Malibou Lake to Malibu Lagoon generally have flows all year long." This is false. In the summer, the stretch from Malibu Lake to the upper end of Century Lake becomes dry for long stretches with small isolated pools becoming larger and more frequent until Century Lake. The segment between Century Lake Dam and Rock Pool (MC-12), is inaccessible because of steep rock walls. Most of the stream from Rock Pool to Mott Road Pool is dry in summer. From Mott Road Pool, past the Salvation Army Camp, past Tapia and past the Los Angeles County gage to Tunnel Pool there is surface flow in most places. The stretch between Tunnel Pool and Rindge dam is not easily accessed and is not sampled. Below Rindge Dam to MC-1 there are stretches that dry entirely, isolated pools, and pools connected by shallow surface flow. Comment 1-D130

Comment (131): Regarding Heal the Bay Stream Walk data, please see our comments for TMDL page 9-9. Comment 1-D131

Comment (132): EPA states that "reference sites are likely not impacted by the sedimentation," but the northern headwaters are primarily shale, which erodes primarily to silts. Since we have not been able to obtain Heal the Bay physical habitat data we are unable to respond specifically, but we suggest that percent fines may be elevated within and downstream of the Monterey / Modelo Formation. Large fractions of this rock consist of silt- and mudstone, and it is both friable and highly fractured in the watershed due to tectonic folding and attendant seismicity. Comment 1-D132

Pages 9-20 to 9-22: B2. Channel Alteration

Comment (133): EPA states that "the evidence from the case clearly supports spatial co-occurrence of channel alteration and increased sedimentation in Malibu Creek." We are at a disadvantage in that EPA has received the Heal the Bay report (Sikich 2012) with this data and information, but we cannot obtain a copy of the report until after it is published later this year in 2013, 2012 not then being the year of publication, but the year that EPA obtained an advance copy. In any case, we were able to obtain the Stream Walk data some years ago, and see nothing in that data set to show that sedimentation was observed in Malibu Creek itself, and that there was very little channel alteration mapped, either. The EPA has not shown that "the case clearly supports" anything, because the EPA has only quoted unpublished work and shown no data. It is only because we have the GIS data that we know most of the alterations are in the northern tributaries. Comment 1-D133

Pages 9-23 to 9-24: B4. Point Source Discharges

Page 9-23

Comment (134): The EPA misstates conclusions from LVMWD (2011) by saying "LVMWD (2011) suggest that nitrate concentrations in the watershed are naturally elevated due to the Modelo formation." A thorough review of the report will not reveal such a statement. Surface water monitoring does not indicate elevated nutrients in streams draining the Monterey/Modelo Formation. What the report does include are observations that the Monterey/Modelo Formation is capable of yielding elevated concentrations of nitrogen compounds. In the text on page 78 we report the high nitrate concentrations found in a benchtop reactor test of crushed rock from Malibu Creek's Modelo Formation headwaters in deionized water (CSDLAC 1996)[40], showing that the rock is capable of contributing the nutrients and metals detected to surface waters. Academic literature on the Monterey Formation strongly supports the CSDLAC finding (Piper and Isaacs 2001)[41]. The CSDLAC (1996) report found very high nitrogen concentrations in some of its benchtop reactor tests, consistent with elevated nitrate concentrations at National Park Service headwaters sites (Table 8, this letter). **Comment 1-D134**

Page 9-24

Comment (135): The EPA says that PO4-P is "significantly higher [in Malibu Creek] than concentrations at reference sites," and acknowledges that "the Modelo formation [sic] does appear to lead to elevated background concentrations of phosphorus." We have tested the significance of reference sites 14 and 18 against Malibu Creek test sites 1, 15 and 12, and find that there is a significant difference, both when tested by season and annually. However, we find no significant difference in PO4-P concentration ($p<0.05$) when Malibu Creek sites 1, 12 and 15 are compared with Heal the Bay and National Park Service reference sites in the northern Monterey/Modelo Formation headwaters. **Comment 1-D135**

Page 9-25

Comment (136): The EPA seems to rebut the claim in the LVMWD (2011) report that PO4-P is elevated in the Monterey/Modelo Formation headwaters by noting that Ch-6 has "lower inorganic phosphorus than any other sites in the Modelo Formation." There is indeed variation in water quality parameters shown to be impacted by the Monterey/Modelo Formation across sites, as would be expected for any geologic source. The TMDL fails to acknowledge that this variation (in PO4-P or other water quality parameters may explain why site Ch-6 has higher SC-IBI scores than other sites in the Monterey/Modelo Formation headwaters and in drainages downstream of it. As mentioned in comments for TMDL pages 9-16 to 9-18, we see differences in ion concentrations by tributary streams draining the Monterey/Modelo Formation. **Comment 1-D136**

[40] County Sanitation Districts of Los Angeles County (CSDLAC), 1996, *Mineral Leaching Study Calabasas Landfill*, Whittier, CA
[41] Piper, D. Z. and C. M. Isaacs. 2001. The Monterey Formation: Bottom-water redox conditions and photic-zone primary productivity. In *The Monterey Formation: From Rocks to Molecules*. C. M. Isaacs and J. Rullkötter, (eds.), Columbia University Press, New York. 2001.

Pages 9-29 – 9-30: B7. Natural Geology

Comment (137): The primary problem with this section is that natural geologic impacts are only assessed relative to their ability to produce toxicity and sediments. It is not assessed relative to its ability to produce water of high ionic strength. This is a significant oversight given the weight of the evidence provided throughout our comments that high concentrations of ions is one of the primary reasons, along with non-perennial flow, that benthic macroinvertebrate communities are depauperate relative to California reference locations. Natural geology was assessed relative to toxicity, when toxicity is not the relevant issue, as described previously. Comment 1-D137

Page 9-32, Table 9-3: Strength of Evidence Analysis, section A2. Reduced Habitat from Excess Algal Growth

Comment (138): We have evaluated scoring for Malibu Creek in this section and disagree with several scores.

a. The EPA scores temporality as weakly supportive (+), and justifies the score with the statement "elevated nutrients appear associated with development, beginning in the 1960s." Yet the EPA says on page 8-26 "An examination of all the Heal the Bay mat algae coverage data shows that there is almost no correlation between algae coverage and either inorganic N or inorganic P concentrations (Figure 8-21). Notably, 100 percent cover can occur at the lowest inorganic nutrient concentrations, while low cover is often found at high inorganic nutrient concentrations. We have also argued that the EPA does not have pre-development algae data or data on macroinvertebrate habitat availability, so the EPA must score this with a "0" – "it is uncertain whether the purported cause preceded the effect (impairment)." It is uncertain what degree of algae growth or habitat availability there was in the pre-development era.
b. The EPA scores Biological Gradient with reduced habitat from excess algae growth as "strongly supportive" of the candidate cause. The explanation given is that algae growth is higher at the 3 test sites on Malibu Creek than at the two reference sites used for comparison. We have previously noted that both the test sites and the reference sites are inappropriate. Reference sites are small coastal streams with a high degree of canopy cover and no upstream Monterey/Modelo Formation. Two test sites are non-perennial. Furthermore, Luce (2003) found that "canopy cover was significantly related to all BMI metrics except percent filterers," and her findings on microalgal cover was "positively but not strongly related to EPT index, percent intolerant species, and percent filterers at some sites." This evidence is not "strongly supportive" of the candidate cause.
c. The EPA scores complete exposure pathway as moderately supportive of algal growth limiting habitat, despite no evidence showing that algal cover or biomass has any correlation with macroinvertebrate measures.
d. The EPA scores consistency of the lines of evidence as "strongly supportive" of algal growth reducing habitat and impairing macroinvertebrate communities. The logical thread the EPA provides is that IBI scores at three selected reference sites (omitting those from LV-9, which fails half the time) are higher than at sites on Malibu Creek (Figure 8-3). They then show correlations between median IBI scores and average nitrate, despite findings by Luce hat they selected are higher than at the One line of evidence is that lower scores are found where there are higher nutrient concentrations. This was shown with Figures 8-11 and 8-13. Then it was shown on Figure 8-20 that the reference sites had higher mat algal cover percentages than at the test

sites. But on page 8-36 the EPA reports no correlation between inorganic nutrient concentration and benthic algal cover. The EPA ignores their own finding and that of EPA funded research (Stein and Yoon 2007) which found average, dry season chlorophyll a concentration in southern California reference streams as 439.2 mg/m2 for benthic algae – much higher than the 150 mg/m2 limit. Then nowhere does the EPA make the connection between algal cover and benthic macroinvertebrate impairment, other than by citing literature. Comment 1-D138

Section 10 – TMDLs and Allocations (Pages 10-1 to 10-14)

Page 10-1

Comment (139): A sentence in the second to the last paragraph reads "Excess nutrient loading causes overgrowth of algae including the development of macroalgal mats, which also directly impair the habitat available for benthic macroinvertebrates, while indirectly contribute to exceedances of DO and pH criteria." We suspect the EPA meant "microalgal" rather than "macroalgal" mats. Heal the Bay's data show more frequent exceedance of the 60% benthic algal target (combined filamentous and diatom data) than the 30% macroalgal target (their floating algal data). Comment 1-D139

Page 10-2: 10.1 Biological Response Targets for the Watershed

Page 10-2

Comment (140): The EPA proposes several biological response targets all of which are, or will soon be, out-dated due to California state policy development. Accordingly we ask that the final TMDL recommend that, if implemented, these outdated or soon to be outdated biological response targets should be adopted only on an interim basis until the state of California adopts newer and more robust metrics and thresholds which can be used in their place. Comment 1-D140

Comment (141), The SC-IBI has already been rejected for use by the state of California, which is expected to have Biological Objectives Policy in place by April 2014. Rather than setting the TMDL biological response target solely to this outdated metric, the EPA should recommend application of newer metrics and thresholds being developed by the state, once the state has approved them. The metric most likely to be approved at the time of this response will be a single composite score derived from a predictive multimetric index and an O/E (not the O/E referenced in the TMDL) Comment 1-D141

Comment (142): As for Comment 140, the SC-O/E, as defined and applied in this TMDL, should be considered interim until the State Biological objectives policy has been adopted. The state will be developing and applying a combination metric that includes a multimetric index (like the IBI, but with a predictive component) and an O/E. We ask that the EPA recommend that its O/E results, if implemented as biological objectives, be adopted as interim targets pending completion of the state policy and methods development Comment 1-D142

Comment (143): Likewise, the TMDL should also recommend that Benthic Algal Coverage targets should also be set as interim targets if implemented until the algal index of biotic integrity (IBI) is developed and ready for use by the state of California. This TMDL applies algal cover percent targets based on Biggs (2000), which were developed for New Zealand streams. California's algal IBI will be based on surveys throughout the state of California. As such, we expect they will find, similarly to Biggs, and account for algal proliferations in catchments with even modest amounts of Tertiary marine sediments. The state methods may include different algal cover percentages and measures of biomass. **Comment 1-D143**

Pages 10-8 to 10-13: 10.3 Nutrient Endpoints

Page 10-8

Comment (144): The TMDL states that "this TMDL, applying the same reference approach, considered nine reference sites…" This does not appear to be accurate. Analyses presented in Section 8 – Biological Habitat and Data Analysis – used mostly only sites SC-14 and LC-18 as reference sites. **Comment 1-D144**

Comment (145): In response to the sentence, "The nutrient TMDL was based on achieving a threshold of 30 percent cover for filamentous (floating) algae greater than 2 cm in length and bottom algae greater than 0.3 cm thick." We refer the EPA to our comments for page 3-2 (with Biggs (2000) warnings about proliferations in catchments with Tertiary marine sediments). **Comment 1-D145**

Page 10-10

Comment (146): The EPA states that "The information on natural background concentrations suggests that attaining the NNE target of 150 mg/m^2 chlorophyll a is likely not feasible in this watershed." If 150 m/m^2 is unfeasible, then a feasible biological response target should be established. **Comment 1-D146**

Page 10-11

Comment (147): The EPA retains the 2003 TMDL summertime phosphorus limit "because the observed data still consistently show that the 2003 numeric target is not met." Although LVMWD (2011) shows that seasonal medians meet the numeric targets, it also shows that the 75th percentile of NO3-N concentrations at sites RSW-MC001U (R-1), RSW-MC-MC002D (R-2) and RSW-MS-013D all exceed the summer target during the non-discharge period. Because these exceedances occur both upstream and downstream of Tapia WRF when Tapia is not discharging, they may be due to upstream sources of nutrients. 2003 TMDL nutrient limits have been applied to the 2012 MS4 permit. 2003 nitrogen limits should be retained for the same reason as phosphorus limits, "because the observed data still consistently show that the 2003 numeric target is not met." **Comment 1-D147**

Pages 10-11 to 10-12

Comment (148): Invitation to Comment on Alternative Option. We approve of the development of a phosphorus limit that reflects natural background concentrations from geologic sources. Dry season median PO4-P concentrations for reference sites in the Monterey / Modelo Formation range from 0.01 mg/L at Heal the Bay site 8 on Palo Comado to 1.24 mg/L at J_EFLASVIR. We expect downstream dilution. However, we also expect that Las Virgenes Creek may naturally exceed the proposed 0.4 mg/L maximum depending on flow contributions from the high concentration East Fork (dry season median 1.24 mg/L) and the lower concentrations from the undeveloped main stem (reference site dry season medians 0.06-0.19 mg/L). Although we approve of phosphorus limit development based on geologic sources in the watershed, we wonder how limits can be developed and still attain the required algal response targets, especially when the EPA has concluded that "attaining the NNE target of 150 mg/m^2 chlorophyll a is likely not feasible in this watershed." (Page 10-10) Comment 1-D148

Comment (149): Unfortunately, we do not have the resources or time to provide the data and information the EPA is requesting by the March 25, 2013 submission deadline, so recommend that the Alternative Option be added to the Recommendations section. We are submitting the National Park Service water quality data we have, but recommend that the EPA also contact the NPS Santa Monica Mountains National Recreation Area directly to obtain more recent data that we do not have. This can be used for this option, but can also be used to more accurately assess natural source contributions of nutrients and other parameters. We do not have time to generate data or information "to illustrate that TP concentrations at or below 0.4 mg/L are also correlated to limited algal coverage data," nor "delineation of and verification that sub areas in the Watershed can be appropriately distinguished between those areas draining the Modelo Formation and those sub areas draining from Non-Modelo Formation." Comment 1-D149

Page 10-12

Comment (150): Table 10-5: Wasteload allocations for Tapia WWTP are given as in-stream limits. The 2003 TMDL in-stream limits were applied directly to Tapia's permit as discharge limits. These 2013 TMDL limits, if applied as end of pipe limits would be an extreme financial burden to ratepayers. We recommend that the EPA clarify that this is not an end-of-pipe requirement. Comment 1-D150

Section 11 – Recommendations (Pages 11-1 to 11-2)

Comment (151): Add a recommendation for the alternative option described on pages 10-11 and 10-12. Comment 1-D151

Comment (152): Add a recommendation that the TMDL be reopened once the state has adopted Biological Objectives polices and assessment methods and thresholds, and results from those methods, including a full, stakeholder-inclusive CADDIS assessment, for Malibu Creek watershed become available. Comment 1-D152

Comment (153): Add a recommendation that the TMDL be reopened again once the state has adopted algal bioassessment policy with methods and thresholds, and results from those methods for Malibu Creek watershed become available. Comment 1-D153

Comment (154): Add a recommendation that data used to ascertain compliance be conducted in accordance with bioassessment methods currently under development. Visual estimates of percent algal cover are not sufficient. Comment 1-D154

Comment (155): Appendix D – O/E Models - See also our comments to page 3-2. The physical predictor variable for geologic influence is inadequate. The EPA selected mean annual precipitation, percent sedimentary geology and longitude as predictor variables. (Page D-3) The EPA's O/E includes percent sedimentary geology, while the State has rejected this criterion and developed more precise predictors of geologic influence. A year ago the state considered a "predicted conductivity" measure, which was composed of 22 geologic and meteorological parameters. More recently they have replaced this with six geologic element measures including those for magnesium oxide, calcium oxide, sulfur, two phosphorus metrics, and mean nitrogen. But not all sedimentary geologic formations contribute similar concentrations in base flow. Base flow from the Monterey Formation headwaters of Malibu Creek watershed is exceptionally brackish with median annual specific conductivity of 3,060 µS/cm. In contrast, the only other site with a different dominant marine sedimentary formation, Stokes Creek, which is dominated by the Calabasas Formation, has a mean annual conductivity of 1,607 µS/cm. And, we have found that ion dominance and concentrations vary by tributary. This results in high conductivity in Malibu Creek (avg = 2,015 µS/cm, median=1915, N=526) where the major ion is sulfate (avg = 666 mg/L, N=225, median=596).

Comment 1-D155

bay restoration commission
STEWARDS OF SANTA MONICA BAY
santa monica bay restoration commission 320 west 4th street, ste 200; los angeles, california 90013
213/576-6615 phone 213/576-6646 fax www.smbrc.ca.gov

January 25, 2013

Dr. Cindy Lin
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Via email: lin.cindy@epa.gov

RE: Comments on the draft Total Maximum Daily Loads (TMDLs) for Sedimentation and Nutrients to address Benthic Community Impairments in Malibu Creek and Lagoon

Dear Dr. Lin:

Thank you for the opportunity to comment on the Draft TMDLs for Sedimentation and Nutrients to address Benthic Community Impairments in Malibu Creek and Lagoon (Draft TMDL). The SMBRC strongly supports EPA efforts to protect and enhance water quality in the Malibu Creek watershed and finds that the TMDLs as drafted are generally scientifically sound and implementable. We have the following specific comments on the proposed TMDLs:

Section 3.1: Malibu Creek and Tributaries Numeric Targets

SC-IBI*: "The SC-IBI scores at stations MC-1, MC-12, and MC-15 should obtain a median value of 40 or better, consistent with at least a "Fair" ranking (Ode et al., 2005)."*

Comment: This target is the lowest end of the "fair" value, and represents little improvement over current conditions. SMBRC recommends a minimum target of 60, consistent with the minimum "good" value in the SC-IBI. This is protective of Malibu Creek water quality and more likely to achieve the beneficial uses of Malibu Creek as specified in the Los Angeles Regional Water Board's Basin Plan, including coldwater habitat. Comment 2-1

Nutrient Concentrations: "*Based on the analyses described above, nutrient targets in Malibu Lagoon were established for several specific parameters based on the reference system approach: total nitrogen (organic plus inorganic nitrogen) targets are 0.6 mg/L in the summer and 1.0 mg/L in the winter; and total phosphorous targets are 0.1 mg/L in the Creek, major tributaries and in the Lagoon throughout the year."*

Comment: We find no scientific basis for a higher winter target for total nitrogen and recommend the 0.60 mg/L for total nitrogen be a year-around target. Comment 2-2

bay restoration commission
STEWARDS OF SANTA MONICA BAY
santa monica bay restoration commission 320 west 4th street, ste 200; los angeles, california 90013
213/576-6615 phone 213/576-6646 fax www.smbrc.ca.gov

Section 3.2: Malibu Lagoon Numeric Targets

Benthic Community Diversity*: "Achieve a goal of increasing species richness in Malibu Lagoon with multiple functional groups. USEPA believes that by setting a target of species richness of 35 in 15 years will lead to a healthy community of benthic invertebrates."*

Comment: EPA has reviewed available data from Malibu Lagoon over a 15 year time span (1995-2010) and concluded that the average taxa richness was 16 taxa. Additionally, EPA has reviewed data from Los Peñasquitos Lagoon and San Dieguito Lagoon and concluded that "The best indication of the expected increase in benthic infaunal richness was the observed data before and after extended mouth closure due to anthropogenic activities. Los Peñasquitos Lagoon saw approximately three-fold increase of taxa richness (from around 11 to 34). Similarly, San Dieguito, although a much larger estuary, saw a six-fold increase in taxa richness after more natural tidal flushing actions were implemented (from 7 to 42)." Based on these data, SMBRC recommends the target for species richness in Malibu Lagoon be increased from the recommended 35 to a minimum of 48, which is a three-fold increase in average taxa richness stated above. Additionally, the recommended 15-year time frame for reaching target species richness should be reduced to ten years, which would be consistent with the results from wetlands cited above. Comment 2-3

11.1 Malibu Lagoon Restoration Plan

Text: "In addition, the East Lagoon will be enhanced with an altered channel to provide for a new avian island and additional mudflat habitat. It will remove accumulated sediment and replace non-native vegetation with appropriate native species…..A new underpass will be constructed to improve riparian habitat access north of the Pacific Coast Highway."

Comment: These activities are not occurring during the current lagoon restoration and the reference should be deleted from this section. Comment 2-4

Additional Comment:

A major restoration project in Malibu Creek that includes the eventual removal of Rindge Dam is currently in the planning stage, and may be implemented during the terms of these TMDLs. The implementation of this plan may have temporary impacts on sediment loads in Malibu Creek. We recommend that the EPA consult with the California Department of Parks and Recreation (State Parks) to address this issue prior to adopting the sediment TMDL. Comment 2-5

We appreciate USEPA's work in developing the TMDLs for Sedimentation and Nutrients

bay restoration commission
STEWARDS OF SANTA MONICA BAY
santa monica bay restoration commission 320 west 4th street, ste 200; los angeles, california 90013
213/576-6615 phone 213/576-6646 fax www.smbrc.ca.gov

to address Benthic Community Impairments in Malibu Creek and Lagoon, and look forward to working with Malibu Creek stakeholders to successfully implement these important regulations.

Sincerely,

Shelley Luce

Shelley Luce, D. Env.
Executive Director
Santa Monica Bay Restoration Commission

SURFRIDER FOUNDATION
WEST LOS ANGELES / MALIBU CHAPTER

2629 Main St. #196
Santa Monica CA 90405

ph 310 984 6910
info@surfriderwlam.org

surfriderwlam.org

January 25, 2013

Cindy Lin
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Via email: lin.cindy@epa.gov

RE: Comments on the draft Total Maximum Daily Loads (TMDLs) for Sedimentation and Nutrients to address Benthic Community Impairments in Malibu Creek and Lagoon

Dear Dr. Lin:

On behalf of Surfrider Foundation, a non-profit environmental organization representing over 9,000 members in Southern California dedicated to the protection and enjoyment of the world's oceans, waves, and beaches for all people, we submit the following comments on the Draft Total Maximum Daily Loads (TMDLs) for Sedimentation and Nutrients to address Benthic Community Impairments in Malibu Creek and Lagoon ("Draft TMDL" or "TMDL").

Surfrider Foundation's West LA/Malibu Chapter has been an active stakeholder on issues related to the Malibu Creek, Lagoon, and Surfzone since its inception in 1984. We strongly supported the Tapia Discharge Prohibition, the Civic Center Septic Prohibition, supported the Lagoon Restoration Project, and are currently participating in the Rindge Dam Feasibility Study, among myriad other projects in the Malibu Creek watershed. Our members' main concerns remain focused around human health and recreation, beach and wave preservation, and supporting efforts that result in healthy coastal ecosystems.

1. Human Health and Recreation

We strongly support the proposed nutrient limits for total nitrogen (TN) and phosphorus (TP) and reduction in sedimentation. Although limits on these parameters may not have a direct connection to keeping water safe for human recreational uses, we believe that by ensuring healthy benthic macroinvertebrate communities in these waters, you also benefit humans, given that water quality standards for aquatic life are typically stricter than those for human drinking water or human health. **Comment 3-1**

2. Sediment Load Reduction – Beach Preservation and the Wave at Surfrider Beach

2629 Main St. #196
Santa Monica CA 90405
ph 310 984 6910
info@surfriderwlam.org
surfriderwlam.org

Surfrider Beach was recently recognized as the very first World Surfing Reserve (2010). Surfrider Foundation recognizes the value and benefits of natural sediment transport from the watershed to the coast, which provides the wide sandy beaches that our members value, establishes the foundation for the very waves which attract millions of people to Malibu each year, and this sediment deposition provides critical protection to private property and historic property along Malibu's coast (e.g., Malibu Colony, Adamson Estate, etc.).

Surfrider Beach, among countless other beaches in Southern California, is sand-starved due to numerous unnatural structures reducing natural transport of sediment downstream to the coast, including roads and freeways, and (specific to Malibu Creek) Rindge Dam, which has been retaining over 600,000 cubic yards of silt, sand, and cobble for nearly a decade.

Surfrider Foundation supports a reduction in unnatural or contaminated sediment, as long as the long-term vision is to restore the sediment flow back to a more natural (pre-development) state. Our organization believes it would be appropriate for the EPA and Regional Board to consider reviewing or reopening this TMDL if/when Rindge Dam is removed. **Comment 3-2**

3. Onsite Wastewater Treatment Systems (Septics)

Surfrider Foundation echoes the comments made in section 5 titled "Other concerns" found in Heal The Bay's comment letter as follows;

> The State Water Resources Control Board's recently adopted Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy) requires the Regional Board to adopt a TMDL implementation plan for Malibu Creek in the near future. USEPA should help shape this plan by providing more detail through its implementation recommendations in the TMDL. The recommendations should be even more stringent than those outlined in Tier 3 of the OWTS Policy. For instance, EPA should recommend a sanitary survey to count, identify, map, and assess the condition of septic systems within 600 feet of Malibu Creek and its tributaries. Existing monitoring data and observations, such as that collected by Sikich et al. (2012)[1] can be used to aid in this effort. Clusters of septic systems that do not utilize advanced treatment may be identified to aid in the implementation of the TMDL. All new and replaced systems within 600 feet of Malibu Creek and its tributaries should be required to include advanced treatment to a reduction of 15 mg/L of nitrogen, and meet the other supplemental treatment requirements of the Septic Policy, effective immediately after adoption of the TMDL. The TMDL should also recommend a schedule that requires compliance with the load allocations as soon as practicable, given the watershed-specific circumstances. **Comment 3-3**

SURFRIDER FOUNDATION
WEST LOS ANGELES / MALIBU CHAPTER

2629 Main St. #196
Santa Monica CA 90405

ph 310 984 6910
info@surfriderwlam.org

surfriderwlam.org

Summary

In summary, Surfrider Foundation strongly supports the proposed limits for nutrients in the Malibu Creek Watershed. We support reduction in unnatural or impaired sedimentation and a restoration to natural sediment levels to promote suitable habitat for benthic macroinvertebrates and re-establish natural conditions on the beach and in the surfzone.

Sincerely,

Nancy Hastings
Southern CA Regional Manager
nhastings@surfrider.org

Graham Hamilton
Chair, West LA/Malibu Chapter
ghamilton@surfriderwlam.org

Reply to:

1215 K Street Suite 940
Sacramento, CA 95814
blarson@casaweb.org

Via Electronic Mail

January 25, 2013

Cindy Linn, Ph.D.
U.S. Environmental Protection Agency, Region 9
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017
E-mail: lin.cindy@epa.gov

SUBJECT: **Proposed Benthic Community Impairment TMDL for Malibu Creek & Lagoon**

Dear Dr. Lin:

The California Association of Sanitation Agencies (CASA) and Tri-TAC appreciate the opportunity to provide comments on the proposed Malibu Creek & Lagoon Total Maximum Daily Load (TMDL) for Sedimentation and Nutrients to Address Benthic Community Impairments. CASA and Tri-TAC are statewide organizations comprised of members representing local public agencies and other professionals responsible for wastewater treatment. Tri-TAC is sponsored jointly by CASA, the California Water Environment Association, and the League of California Cities. The constituency base for CASA and Tri-TAC collects, treats and reclaims more than two billion gallons of wastewater each day and serves most of the sewered population of California.

CASA and Tri-TAC do not routinely comment on individual TMDLs. An exception to this practice arises when a draft TMDL would establish a precedent or conflict with efforts to ensure consistent statewide approaches to important regulatory and technical issues. In this case, many components of the draft TMDL are inconsistent and potentially contradictory to current statewide efforts to develop a policy to adopt biological objectives, as well as to eventually address biological impairments that may be identified. Specifically, we believe that the scoring tools used to identify the original benthic macroinvertebrate (BMI) bioassessment listing and subsequent TMDL evaluations were premature, inappropriate, and contradictory to those currently being developed as part of the State Water Resources Control Board's (SWRCB's) development of statewide biological objectives. The SWRCB's process includes improved tools for the estimation of BMI community health. Additionally, an evaluation of the available causal assessment tools, including those used in the linkage analysis of this TMDL by the SWRCB's Biological Objective Policy Technical Team concluded that currently available causal assessment tools were only marginally useful at eliminating potential causes of impairment and fell woefully short of being capable of identifying likely causes. We recognize that USEPA was under a time constraint for development of this draft TMDL due to a consent decree deadline. However, the TMDL as proposed does not reflect the minimum level of scientific rigor and technical accuracy required to establish regulatory requirements. These potentially precedential and significant flaws are of such statewide importance to warrant these comments.

With the SWRCB actively engaged and committing significant financial and technical resources in the development of a statewide biological objective policy, we believe that it is extremely premature and potentially contradictory for USEPA or Regional Water Quality Control Boards to circumvent this process by attempting to address these issues independently. Furthermore, the USEPA has already adopted a nutrient TMDL in 2003 for Malibu Creek,[1] and receiving water nutrient targets specified in that TMDL have not been fully attained. Further reductions to these targets to address suspected nutrient-related impacts to the benthic community may be unwarranted and unnecessary once the existing 2003 EPA TMDL nutrient targets have been achieved and BMI evaluations using the more robust tools and procedures developed by the SWRCB have been conducted. Therefore, it is our recommendation that nutrient targets and waste load allocations in this TMDL be set equivalent to those adopted in the 2003 EPA nutrient TMDL until those receiving water targets have been met and the SWRCB has completed development of the State's Biological Objective Policy, which is anticipated to include better and more robust scoring tools as well as more appropriate causal assessment tools.

Also of major concern is that the numeric targets and waste load allocations for nutrients being proposed in this TMDL are at or below the current limits of technology for wastewater treatment facilities. Complying with such targets and allocations, if attainable at all, would necessitate the expenditure of considerable public funds. It is therefore critical that all of the technical elements associated with the underlying 303(d) listing and the development of this TMDL are complete, technically robust, and capable of providing an appropriate level of certainty to the public that such expenditures will reasonably result in attainment of the desired biological condition. Given the significant efforts, changes, and scientific scrutiny being implemented by the SWRCB and nationwide experts regarding the BMI bioassessment tools and causal assessment procedures, the application of flawed and outdated tools contained in this TMDL is entirely inappropriate. Similarly, the high degree of uncertainty associated with the causal assessment in the draft TMDL that was used to link nutrients and sediments to benthic community impacts is wholly inadequate to justify the extraordinary costs that would be required to implement the TMDL.

Detailed and comprehensive discussion of the issues identified above are included in the attached summary. Thank you for your consideration of our comments.

Sincerely,

Roberta L. Larson, Executive Director
CASA

Terrie L. Mitchell, Chair
Tri-TAC

[1] USEPA (United States Environmental Protection Agency). 2003. Total Maximum Daily Loads for Nutrients Malibu Creek Watershed. U.S. Environmental Protection Agency, Region 9, San Francisco, CA. http://www.epa.gov/region9/water/tmdl/malibu/final_nutrients.pdf.

Attachment

CASA/Tri-TAC Comments

Proposed Benthic Community Impairment TMDL for Malibu Creek & Lagoon

The SoCal IBI is Inappropriate for Use as an Estimate of BMI Impairment in Malibu Creek

Comment 4-1

The draft TMDL references a publication[1] to support the contention that the SoCal IBI provides reasonably consistent results in low gradient/low slope habitats (page 8-4). However, this publication simply indicated that different sampling methods in low gradient/low slope habitats yielded reasonably consistent IBI scores but further concludes:

> *"Caution should be used when applying sampling methods or assessment tools that were calibrated for specific habitat types (e.g., high gradient streams) to new habitats (e.g., low gradient streams). Our evaluation of assessment tools unveiled a number of shortcomings that weaken application of these tools in low-gradient streams, including the inability to collect adequate numbers of organisms, poor sensitivity of assessments, and low precision of the sampling methods." (Emphasis added.)*

This conclusion is consistent with other expert opinions that determined that due to land use changes most often associated with low gradient and low elevation streams in southern California, significant uncertainty exists regarding appropriate reference condition for these streams[2,3]. Additionally, in a June 2008 Southern California Coastal Water Research Project (SCCWRP) and Los Angeles Regional Water Quality Control Board hosted stakeholder workshop on evaluating tiered aquatic life uses (TALU), Ken Schiff (SCCWRP) and Jerry Diamond, Ph.D. (Tetra Tech) concurred with stakeholders that low gradient (and not low elevation) was perhaps the most critical factor for distinguishing stream biology and that the lack of reference condition for low gradient streams is a critical data gap.[4]

It is therefore not surprising that the experts on the Technical Team charged by the SWRCB to evaluate and develop appropriate BMI tools for eventual inclusion in the SWRCB's Biological Objective Policy have rejected the use of the SoCal IBI (and all other regional multi-metric tools) for statewide bioassessment application. The most widespread and universal problem with the SoCal IBI identified by the Technical Team and Science Advisory Group experts is that reference

---

[1] Mazor, R.D., K. Schiff, K. Ritter, A. Rehn, and P. Ode. 2010. Bioassessment tools in novel habitats: An evaluation of indices and sampling methods in low-gradient streams in California. *Environmental Monitoring and Assessment*, 167: 91-104.

[2] Tetra Tech. 2006. Revised Analyses of Biological Data to Evaluate Tiered Aquatic Life Uses (TALU) for Southern California Coastal Streams. Prepared for: EPA Region 9 and California Los Angeles Regional Water Quality Board. Tetra Tech, Inc. Owings Mills, MD.

[3] Tetra Tech. 2005. Evaluation of Tiered Aquatic Life Uses (TALU) for Southern California Coastal Streams. Draft Summary Report. Prepared for: EPA Region 9 and California Los Angeles Regional Water Quality Board. Tetra Tech, Inc. Owings Mills, MD.

[4] Jerry Diamond Ph.D., Tetra Tech. July 31, 2009. Memo to Los Angeles County Sanitation Districts. Tetra Tech, Inc. 400 Red Brook Blvd., Suite 200. Owings Mill, MD. 21117-6102.

expectation is assumed based on a region-wide sampling of minimally impacted locations without regard to site-specific differences in natural gradients such as slope, precipitation, watershed size, etc. Instead, these technical experts have developed a multi-metric tool that utilizes a modeled estimate of reference condition based on site-specific similarities in natural gradients from a statewide database of minimally impacted locations. This metric was then combined with an observed over expected ratio (O/E). These new scoring tools are ultimately combined into a single score for estimation of biological condition.

Even with the development of these more robust scoring tools, significant and as of yet unresolved concerns regarding the under-representation of reference locations in the South Coast Xeric eco-region (as well as other eco-regions and habitat types) have resulted in significant discussions among the Technical Team, Science Advisory Group, and stakeholders as to whether or not the newly proposed "modeled" scoring tools are appropriate for such locations. For regions where the scoring tool may not be appropriate, the Science Advisory Group has recommended alternative assessment approaches that include examinations of relative biological condition above and below suspected stressor sources.[5] An example of the limitations and failings of this tool can be found in the TMDL evaluation of possible impacts associated with the colonization of invasive New Zealand Mudsnails. In ruling out invasive species as a potential cause of the low SoCal IBI scores, the TMDL points out a location where the invasive species represents 3% of the total benthic invertebrate population at one point in time and over 80% of the total benthic invertebrate population at another (See page 8-39). However, the SoCal IBI was the same. Clearly, a benthic scoring tool incapable of distinguishing such a dramatic shift in species composition, particularly considering the shift was observed at the same location and was due to a non-native invasive species, is not well suited for use in this watershed.

In summary, the original BMI impairment decision was based exclusively on the inappropriate and flawed SoCal IBI scoring tool that has been resoundingly rejected by technical experts, particularly for some of the water body segments in this watershed. Additionally, the EPA TMDL focuses most of its effort on establishing anthropogenic causes suspected of influencing this flawed index. Although some effort was also made to evaluate an O/E metric, the manner in which EPA estimated reference expectations retained many, if not all of the shortcomings associated with the SoCal IBI. Finally, the technical experts are still evaluating whether or not the more robust tools they have developed are appropriate for streams in the South Coast Xeric eco-region and/or low gradient streams. For these reasons, the reliability of the original impairment listing for benthic invertebrate community is questionable and any causal assessment that uses these flawed tools would be equally unreliable.

Significant Uncertainty Exists in the TMDL's Casual Assessment (Linkage Analysis)

Comment 4-2

Through the causal assessment described in the Linkage Analysis Section of the TMDL, EPA concluded that habitat-related impacts associated with excess algae due to elevated nutrients (nitrogen and phosphorus) and sediment loadings were the most significant and likely causes of low SoCal IBI scores. In conducting this analysis, EPA relied heavily on existing causal assessment tools, specifically the Causal Analysis/Diagnosis Decision Information System (CADDIS). It is important to acknowledge that the same Technical Team assembled by the SWRCB to develop the scoring tools also conducted a pilot study to evaluate the efficacy of using the CADDIS causal assessment tool to identify causes of suspected BMI impairments in California. Their overarching

[5] Science Advisory Group Meeting. October 18, 2013. Science Advisory Group Recommendations Presentation. http://www.swrcb.ca.gov/plans_policies/docs/biological_objective/101712_meeting/nine_panel_response_oct.pdf

conclusion was that for streams exposed to chronic and systemic stressors, CADDIS was only marginally useful in being able to rule out potential causes but was wholly inadequate in identifying the causes of BMI impairments.[6] Additionally, the CADDIS causal assessment conducted for this TMDL did not utilize all available information including evaluation of all potential natural and anthropogenic stressors and failed to use appropriate comparator locations that are not also "reference" locations.

An evaluation of the TMDL's causal assessment indicates that the investigators used "reference" locations as "comparator" locations to evaluate spatial and temporal co-occurrence and biological gradient components of CADDIS. However, use of "reference" locations as "comparator" locations is not recommended because presumably all potential stressors would be absent in a "reference" location and therefore, it would be impossible to determine which stressors or gradients were responsible for the change in biological condition. For example, since all of the "reference" locations exhibited a slope of greater than 2%, it would be impossible to rule out slope as a major or primary contributing cause.

Similarly, practically any and all natural and anthropogenic habitat condition factors such as canopy cover, stream embeddedness, conductivity, and countless other variables could not be differentiated from the stressor being evaluated if "reference" locations are used as "comparator" locations. Therefore, it is recommended that comparator locations be selected that are similar in nearly every way to the test or "impaired" site with the exception of one or only a few stressor variables. An excellent candidate "comparator" site is the location immediately upstream of the Tapia Water Reclamation Plant (WRP) outfall (MC-12). Because this site is in very close proximity to the MC15 location immediately downstream of the Tapia WRP and since the WRP only discharges during the winter months, the only significant stressor differences between these two direct comparator locations are associated with winter month discharges that include increased nutrient loadings during the winter. Since the biological condition is essential identical at these two locations (with the downstream location actually scoring slightly higher than the upstream location), clearly winter nutrient loadings can be ruled out as a possible stressor. This represents a much more robust and better approach to quantifying spatial and temporal co-occurrence than the use of a "reference" location. If this analysis had been conducted, it would have demonstrated that there is no temporal and spatial co-occurrence associated with low SoCal IBI scores and winter nutrient loadings. For summer nutrient loadings, the relationship would be inconclusive.

Additionally, natural stressors or gradients do not appear to have been fully evaluated as part of the causal assessment in this TMDL. Specifically, changes in slope as a potential major or primary contributing factor were not completely evaluated. As previously discussed, this environmental gradient has been identified by experts as possibly the most critical factor for distinguishing stream biology in southern California. Coincidently, a correlation analysis conducted on data presented in this TMDL indicates that achieving "reference" condition as measured using the SoCal IBI (score of 40 or more), is virtually impossible if the slope at the site is less than 2% (see Figure 1). Although the lack of latitude/longitude coordinates for all the locations prevented conducting a quantitative analysis on precipitation, it is suspected that a similar relationship also exists with long-term mean precipitation based on the PRISM dataset for GIS. Other natural factors such as perenniality, local geology, flow, lack of riparian cover, channel alteration and others should have also been carefully evaluated before finalizing any conclusions.

[6] Science Advisory Group Meeting. October 17, 2013. Technical Team Causal Assessment Update Presentation. http://www.waterboards.ca.gov/plans_policies/docs/biological_objective/101712_meeting/four_caddis_overview.pdf

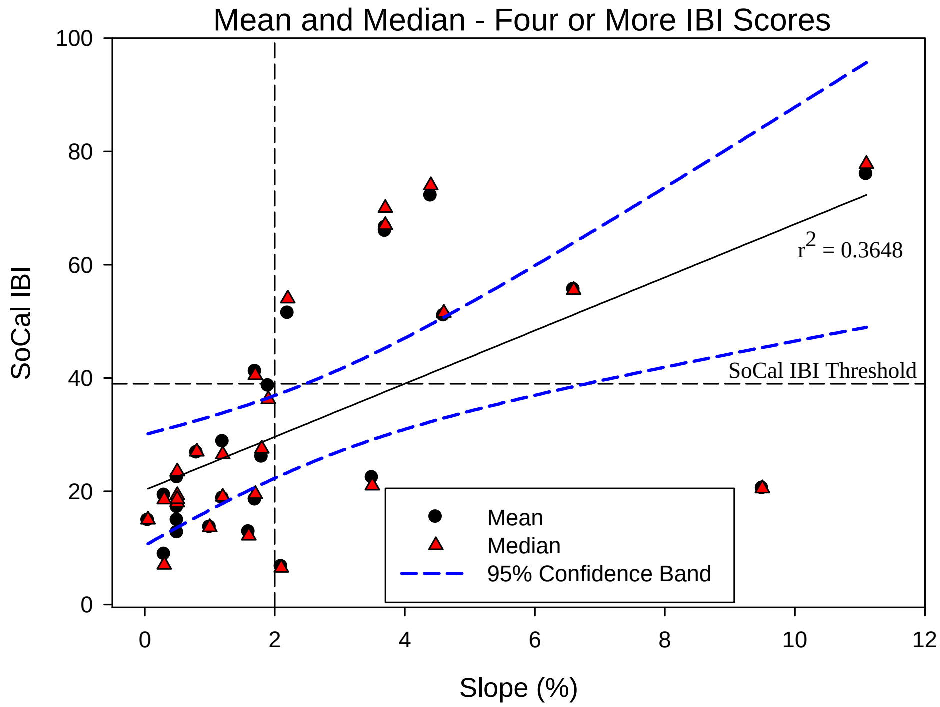


FIGURE 1: Relationship of Malibu Creek SoCal IBI to percent slope

Finally, various potential chemical stressors (natural and anthropogenic) known to impact benthic invertebrates at elevated concentrations were not adequately evaluated. These include but are not limited to sulfate, selenium, calcium, chloride, and others.[7] Furthermore, chemical compliance monitoring in the watershed indicated that many of these compounds exceeded the benthic invertebrate thresholds identified in the referenced study.[8] Although some contend that it is better to have concurrently collected biological data and water chemistry data to conduct a causal assessment, this is not always available and it is not always desirable. In this instance, use of annual or quarterly means would have probably been most representative of exposure conditions likely to impact the BMI community and should have been utilized to evaluate the spatial and temporal co-occurrence of these and other suspected compounds. Consistent with the recommendations provided by the SWRCB Biological Objective Policy Technical Team, CASA and Tri-TAC believe that a more thorough causal assessment should be conducted through an open stakeholder process using more robust tools and approaches being developed as part of the SWRCB's Biological Objective development process.

Receiving Water Nutrients Targets and Waste Load Allocations on Nutrients in this TMDL Should Be Consistent With Those Developed in the 2003 Nutrient TMDL for Malibu Creek Comment 4-3

Receiving water nutrient targets and waste load allocations for nitrogen and phosphorus were implemented as part of the 2003 Nutrient TMDL for the Malibu Creek watershed to specifically address excess algae associated with aquatic life and recreational beneficial use impairments. In the

[7] Pond, G. J., M. E. Passmore, F. A. Borsuk, L. Reynolds and C. J. Rose. 2008. Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools. *Journal of the North American Benthological Society*, 27(3): 717-737.

[8] Water Quality in the Malibu Creek Watershed, 1971 – 2010. March 31, 2011. Submitted by the Joint Powers Authority of the Las Virgenes Municipal Water District and Triunfo Sanitation District to the Los Angeles Regional Water Quality Control Board in compliance with Order No. R4-2010-0165. LVMWD Report #2475.00.

2003 Nutrient TMDL, EPA determined that the summer months represented the critical condition in this watershed and set seasonal receiving water nitrogen for the winter months of 8 mg/L and 1.0 mg/L for the summer months. In the draft BMI TMDL, EPA notes these numeric targets are not being consistently met, with post-2005 summer month exceedances still being observed over 30% of the time (Table 7-6 on page 7-13). This would indicate that if nutrient loadings are in some way contributing to current algal conditions resulting in low SoCal IBI scores, consistent attainment of the 2003 Nutrient TMDL targets may potentially result in eventual attainment of the desired condition. This is particularly important considering that a causal assessment incorporating a more appropriate comparator site appears to indicate that winter month nutrient loadings are having no effect on the BMI community. For these reasons, CASA and Tri-TAC suggest that nutrient targets and waste load allocations not be further restricted until full implementation of the 2003 Nutrient TMDL results in consistent attainment of the 2003 targets developed to address the same impairments. At that point, an open stakeholder driven assessment should be conducted to evaluate if beneficial uses are still being impaired using the more robust and appropriate tools developed as part of the SWRCB's Biological Objective Policy efforts.

Biological Response Numeric Targets Should Not Be Used as NPDES Permit Limit

Comment 4-4

The draft TMDL states "[t]he biological response numeric targets for Malibu Creek and Lagoon are directly linked to the allocations and should be placed into the applicable regulatory mechanism (i.e., NPDES permit) in order to ensure that the benthic community condition achieves the water quality objectives." (Page 10-13) Notwithstanding the issues that the biological metrics used are inappropriate and that the biological response was not adequately linked to the pollutants for which allocations are being developed, it is not appropriate to hold individual NPDES permit holders responsible in their NPDES permits for attainment of biological response numeric targets. Insufficient evidence has been provided to indicate that any individual NPDES permit holder is causing or contributing to any biological condition impairment. These individual NPDES permit holders should not be held responsible for attaining targets that may not be related to their discharges, and that may require actions beyond the NPDES permit holder's control to resolve.

The Proposed Numeric Targets Are Not Attainable with Current Technologies **Comment 4-5**

The draft TMDL proposes numeric targets for nitrogen of 1.0 mg/L and phosphorous of 0.1 mg/L. Experts have opined that these two targets together are unattainable. For example, in litigation brought by the United States in *U.S. v. Eastern Municipal Water District*, U.S. Dt. Court for the Central District of California, Case No. CV 04-8182 (CBM (RNBx)), the United States' expert, Dr. Rhodes Trussell, opined that the Best Available Technology ("BAT") for publicly owned treatment plants was, in the case of nitrogen, an annual average of 2.5 milligrams per liter and a monthly maximum of 5 milligrams per liter. In the case of phosphorus, BAT could achieve an annual average of 0.25 milligrams per liter with a monthly average of 0.5 milligrams per liter. Thus, the proposed numeric targets in the draft TMDL are below those that can be reasonably achieved through current treatment technologies.

The proposed numeric targets are also below the currently defined Limits of Technology (LOT). Most experts on nutrient removal agree that LOT must be defined for a particular effluent under particular circumstances, and that a specific period of measurement must be included (e.g., daily maximum, monthly average, annual average, etc.). Nevertheless, 3 mg/L Total Nitrogen (TN) and 0.1 mg/L Total Phosphorous (TP) are often used as the starting point for discussing LOT for nutrient removal. However, it is still not clear that these two levels can be met simultaneously at one treatment plant. For example, in the Water Environment Research Federation (WERF) workshop "Nutrients 2007," a special session was held on the "State of the Art in Nutrient Removal Design."

At this workshop, three national experts were asked to address the same challenge, namely how to design a treatment plant to achieve TN of <3 mg/L and TP of < 0.1 mg/L on a monthly average basis. Although plants have met one of these criteria, we are unaware of any plant that can achieve both simultaneously as demonstrated by the below data:

Table 20: List of Plants Achieving TN < 2.5 mg/L[a]

Facility Name/Location	TN (mg/L)	TP (mg/L)
Bayou Marcus WRF, Pensacola, Florida	1.8	0.13
Central AWWT Facility, Fort Myers, Florida	1.75	0.1
City of Dunedin, Florida	2.3	0.31
Fiesta Village, Florida	1.0	0.19
Graceville, Florida	< 2.5	< 0.50
Iron Bridge Regional WRF, Oviedo, Florida	1.4	0.2
McDowell Creek WWTP, Huntersville, North Carolina	1.7	0.1
Reedy Creek Improvement District WRF, Lake Buena Vista, Florida	2.5	0.26
River Oaks, Florida	1.4	0.30
Triangle Wastewater Treatment Facility, Durham, North Carolina	2.37	0.26
Truckee Meadows, Reno, Nevada	2.0	0.34

[a]Sources of data in Table: deBarbadillo et al. 2006, Neethling et al. 2005, Pagilla et al. 2007, WERF 2006

A TMDL should not be adopted that, from its outset, is not attainable within the limits of technology. One of the main goals of the Clean Water Act, namely the goal of fishable/swimmable waters, clearly recognizes that this goal may not always be attainable. (33 U.S.C. §1251(a)(2) [limited to "where attainable"].) Thus, EPA should not adopt TMDLs that have demonstrably unattainable goals and targets.

<u>The Draft TMDL Is Based On An Improper Listing</u> Comment 4-6

Unlike the Nutrient TMDL, this draft TMDL is based on an alleged impairment to benthic communities, not an impairment on any particular pollutant. The use of surrogates has recently been called into question in the courts and should be carefully considered before EPA proceeds with this draft TMDL. In early January of 2013, a federal court in Virginia ruled that EPA is not authorized under the Clean Water Act to impose a flow-based TMDL for Accotink Creek in Fairfax, Virginia. (*Virginia Dept. of Transportation v. USEPA*, U.S. Dt. Court for the Eastern District of Virginia, Case No. 1:12-CV-775, Memorandum Opinion, Jan. 3, 2013.) In that case, the Court limited the jurisdiction of EPA and recognized that EPA can only regulate pollutants as that term is defined by Congress. Further, the Court recognized that the clear wording of the Clean Water Act states that waters can be listed under Section 303(d) and that TMDLs can only be done "for those pollutants which the Administrator identifies under section 1314(a)(2) of this title as suitable for such calculation" (*Id.* at 4, *citing* 33 U.S.C. §1313(d)(1)(C).) Thus, it is not clear that the listing for benthic community impairment was proper in the first place. If the listing was not proper because benthic community impairment is not a "pollutant", then it is not suitable for calculation of a TMDL. For these reasons, we believe that allowing the Nutrient TMDL to be fully implemented before moving forward with this draft TMDL is the most reasonable and efficient approach.

State of California • Natural Resources Agency Edmund G. Brown Jr., ***Governor***

DEPARTMENT OF PARKS AND RECREATION Major General Anthony L. Jackson, USMC (Ret)***, Director***
Angeles District
1925 Las Virgenes Road
Calabasas, California, 91302

January 25, 2013

Dr. Cindy Lin
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Via email: lin.cindy@epa.gov

RE: Comments on the Draft Total Maximum Daily Loads (TMDLs) for Sedimentation and Nutrients to Address Benthic Community Impairments in Malibu Creek and Lagoon

Dear Dr. Lin:

The California Department of Parks and Recreation (CDPR), Angeles District appreciates the opportunity to provide comments on the above referenced document. Below our are general and specific comments. Although some of these comments may be most appropriate for the future implementation plan, we wish to bring them forward now for consideration.

<u>Comments</u>:

1) Request Rindge Dam Removal Project Exemption from TMDL Sediment Limits

The Malibu Creek Ecosystem Restoration Project (Rindge Dam Removal Project) is scheduled to complete its feasibility/environmental phase in the next year. Funding permitting, the project would be implemented within the next decade and likely within the timeframe of this TMDL. This important restoration project would not only remove Rindge Dam, but up to 11 additional upstream barriers, to protect and expand steelhead migration within one of only three streams where this species is found in the Santa Monica Mountains. Other aquatic and riparian species would benefit from removal of these barriers and the restoration of associated habitat. Natural sediment processes would be greatly improved by this project, and would also ultimately benefit area beaches, and associated recreational opportunities, and would provide buffers from storm and flood damage.

Removal of the dam and the sediment impounded behind it, is anticipated to take about 5-7 years. During this time, sediment transport could increase temporarily during construction despite use of BMPs. As this important project has significant net benefits to the watershed and removes an identified impairment to fish migration, we are requesting that the project be exempt from the TMDL limits for sediment during the construction phase. **Comment 5-1**

2) Clarifying Our Position on Open Space's Role on Watershed Pollution

CDPR and other open space agencies throughout the Santa Monica Mountains spend considerable time and resources managing and improving storm water runoff from our properties. This effort includes inventorying potential sources of sediments, nutrients and other pollutants that might be entering waterways and correcting these issues as funding becomes available. Specific examples include the redesigned Malibu Lagoon Parking Lot which captures, treats and infiltrates all the stormwater runoff from a 3.2 inch rain storm in 24 hours. This use of Low Impact Development technologies have also been implemented at Baldwin Hills Scenic Overlook, and Los Angeles State Historic Park, among other areas.

Open space areas managed by CDPR, Angeles District, and other resource agencies also improve water quality derived from upstream sources as it passes through our undeveloped areas. This is supported by studies conducted by Heal the Bay's Stream Team over a 10-year period, which showed that undeveloped streams in open space areas improve the water quality for bacteria and nutrients associated with storm water runoff emanating from urban areas.

We take responsiblity for the pollutants that emanate our properties and for properly maintaining our storm water facilities. We request, however, that CDPR, Angeles District, not be held responsible for pollutants that we did not produce, but unfortunately flow downstream onto our lands from upstream sources within the watershed, resulting in adverse impacts upon the environment. We hope this will be considered within the future implementation plan. **Comment 5-2**

3) Section 3.1: Malibu Creek and Tributaries Numeric Targets

SC-IBI: "The SC-IBI scores at stations MC-1, MC-12, and MC-15 should obtain a median value of 40 or better, consistent with at least a "Fair" ranking (Ode et al., 2005)."

Comment: Why are we shooting for a low "fair" value rather than a "good" value? **Comment 5-3**

4) Section 3.2: Malibu Lagoon Numeric Targets

Benthic Community Diversity: Achieve a goal of increasing species richness in Malibu Lagoon with multiple functional groups. USEPA believes that by setting a target of species richness of 35 in 15 years will lead to a healthy community of benthic invertebrates.

Comment: EPA has reviewed available data from Malibu Lagoon over a 15 year time span (1995-2010) and concluded that the average taxa richness was 16 taxa. Given that we expect the Lagoon restoration project alone, with its improvements to tidal flushing, to significantly increase species richness, it seems the goal of 35 may be low for a 15-year period, especially when considering the results for the similar Los Peñasquitos and San Dieguito Lagoons:

> *"The best indication of the expected increase in benthic infaunal richness was the observed data before and after extended mouth closure due to anthropogenic activities. Los Peñasquitos Lagoon saw approximately three-fold increase of taxa richness (from around 11 to 34). Similarly, San Dieguito, although a much larger estuary, saw a six-fold increase in taxa richness after more natural tidal flushing actions were implemented (from 7 to 42)."* **Comment 5-4**

5) Implementation Plan:

What is the time frame for the preparation of the Implementation Plan for these TMDLs? The completion and implementation of this document should be a high priority. **Comment 5-5**

6) Other Minor Comments:

Pg. 1-4: Western Snowy plover also has critical habitat designated for it in the Malibu Lagoon now. **Comment 5-6**

Pg 2-2: Why isn't Malibu Lagoon checked for the BIOL category? **Comment 5-7**

Figure 7-1: I would doublecheck with SMBRC (Jack Topel/ Mark Abramson) and NPS staff (Katy Delaney) that additional monitoring stations have not been overlooked. **Comment 5-8**

Section 11-1: The work near the Adamson house (Eastern Lagoon) was not ultimately implemented as part of the Malibu Lagoon Restoration project due to cultural resource concerns. **Comment 5-9**

Please contact me if we can provide any clarifications on our comments. I can be reached at 818.880.0373.

Also, please add me as a contact for CDPR within the Los Angeles and Ventura County areas.

Sincerely,

Jamie King
Environmental Scientist

county of ventura

PUBLIC WORKS AGENCY
JEFF PRATT
Agency Director

January 25, 2013

Watershed Protection District
Tully Clifford, Director

Transportation Department
David Fleisch, Director

Engineering Services Department
Chris Cooper, Interim Director

Water & Sanitation Department
R. Reddy Pakala, Director

Central Services Department
Janice Turner, Director

Cindy Lin, PhD (WTR-2)
U.S. Environmental Protection Agency (U.S. EPA)
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Subject: COMMENTS ON DRAFT MALIBU CREEK & LAGOON TMDL FOR SEDIMENTATION AND NUTRIENTS TO ADDRESS BENTHIC COMMUNITY IMPAIRMENTS, DATED DECEMBER 2012

Dear Dr. Lin:

The County of Ventura (County) and Ventura County Watershed Protect District (District) appreciate the opportunity to provide comments on the Draft Malibu Creek and Lagoon TMDL for Sedimentation and Nutrients to Address Benthic Community Impairments dated December 2012 (hereafter referred to as the "Draft Malibu Benthic TMDL"). We support similar comments being submitted by the City of Thousand Oaks. In general, we share U.S. EPA's goal of protecting in-stream biology and habitat and would like to work with the U.S. EPA to improve the Draft Malibu Benthic TMDL so that it can better achieve its objectives. However, we are concerned with several aspects of the Draft Malibu Benthic TMDL that we feel are precedent setting, and ahead of science and policies being developed by the State of California. We believe the Draft Malibu Benthic TMDL could result in significant expenditure of public resources for dischargers in the Malibu Creek watershed that are not justified by the information and science presented in the Draft Malibu Benthic TMDL.

The intent of this letter is to request and provide technical support for the following requests:

I. Removal of the sedimentation waste load allocations (WLAs) for the Ventura County MS4s,

II. Removal or modification of the nutrient WLAs for the Ventura County MS4s,

III. Removal of benthic macroinvertebrate targets and allocations for Malibu Creek and Malibu Lagoon, and

IV. Additional clarifications.

Hall of Administration L # 1600
800 S. Victoria Avenue, Ventura, CA 93009 • (805) 654-2018 • FAX (805) 654-3952 •http://www.ventura.org/pwa

To support these requests, we have included three technical attachments to this letter and summarized the key points below.

I. Removal of the Sedimentation WLAs Comment 6-1

As discussed in Attachment A, we are requesting that sediment WLAs for Ventura County MS4s be removed from the Draft Malibu Benthic TMDL. The request is made based on the belief that MS4 WLAs controlling for sediment supply in the upper watershed will not address any sedimentation impairment in main stem Malibu Creek because:

1. Ventura County MS4s contribute only a minor fraction (significantly less than 10%) of total sediment loading in the watershed annually;

2. County unincorporated area (UA) and the City of Thousand Oaks MS4s are located in the upstream reaches of the Malibu Creek Watershed and sediment loading to main stem Malibu Creek from such MS4s is disrupted by a sequence of dams which obstruct downstream sediment transport; and

3. Post-construction/hydromodification requirements in the Ventura MS4 NPDES Stormwater Permit, with which Ventura County MS4s must comply, address the potential impacts of urban development on increases to in-stream work, which is a key cause of the sedimentation and habitat/biota impairments based on the Draft Malibu Benthic TMDL stressor analysis.

In addition, there are several inaccuracies in the technical approach to developing sedimentation WLAs that are not consistent with the state of the practice for hydromodification management (Hydromodification Assessment and Management in California, SCCWRP Technical Report 667, April 2012, Managing Runoff to Protect Natural Streams: the Latest Development on Investigation and Management of Hydromodification in California, Stein et al, 2005). Most notably that WLAs which require a reduction in supply to a reach where in-stream erosion is occurring will exacerbate sedimentation by starving already hungry water of its sediment transport capacity; open space sources are significant and should be accounted for; evidence providing a link between MS4s and the sedimentation impairment is not provided; work associated with instantaneous peak flows is not reflective of "effective" work; and the change in instantaneous work at one cross-section is not reflective of changes to the sediment regime of a watershed. These are discussed in more detail in Attachment A.

REQUESTED ACTION: We kindly request that sediment WLAs for Ventura County MS4s be removed from the Draft Malibu Benthic TMDL.

II. Removal or Modification of the Nutrient WLAs for the Ventura County MS4s

Comment 6-2

As outlined in Attachment B, we are requesting the removal of the nutrient WLAs (or replacement of the proposed targets and WLAs for Ventura County MS4s with the 2003 Malibu Nutrient TMDL values). For the same reasons as outlined in Attachment A for sediment, transportation of particulate nutrients downstream to the main stem of Malibu Creek and Malibu Lagoon is disrupted by a sequence of dams. These dams also prevent significant dry weather flows that could transport dissolved nutrients from reaching the main stem. As a result, including new allocations for the Ventura County MS4s is not warranted.

The Ventura County MS4s are concerned with the analysis done to justify changes to the nutrient targets and allocations established in the 2003 TMDL for Nutrients in the Malibu Creek Watershed (2003 Malibu Nutrient TMDL). Based on our review of the Draft Malibu Benthic TMDL, it appears the basis for the need to include lower total nitrogen targets and allocations in the Draft Malibu Benthic TMDL and to apply both the total phosphorus and total nitrogen targets and allocations year round were the following:

1. A case study conducted in support of the development of nutrient numeric endpoints (NNE) policy being developed by the State of California that was updated to support analysis for this Draft Malibu Benthic TMDL. The analysis implied that lower nutrient targets were required to achieve the targeted concentrations of algal biomass in the watershed.
2. Analysis of additional reference reach data collected since 2003 demonstrated that reference reach concentrations were lower than those presented in the 2003 Malibu Nutrient TMDL.
3. The 2003 Malibu Nutrient TMDL targets are being achieved and the percent cover of algae is not yet meeting the TMDL targets.
4. The Draft Malibu Benthic TMDL stressor analysis identified algal percent cover as a potential cause of the benthic macroinvertebrate impairments being addressed in the Draft Malibu Benthic TMDL.

Again, we are concerned with establishment of new requirements based on analysis associated with a State Policy still under development. Additionally, we feel technical support and rationale for the modifications to the targets and allocations from the 2003 Malibu Nutrient TMDL are inadequate for the following reasons (as detailed in the attached technical comments, Attachments A through C):

1. The nutrient analysis provided in the Draft Malibu Benthic TMDL does not justify lowering the targets and allocations at this time. The Draft Malibu Benthic TMDL incorrectly determines that the watershed is already meeting the 2003 Malibu Nutrient TMDL's nutrient targets and therefore lower targets are necessary to reduce algal biomass. Additionally, the linkage between reducing nutrient concentrations and reducing algal biomass is not established in the Draft Malibu Benthic TMDL.

2. The Draft Malibu Benthic TMDL does not provide sufficient linkage between nutrient concentrations and the benthic macroinvertebrate (BMI) impairments. The stressor analysis that was conducted to determine that elevated mat algal coverage resulting from excess nutrients as a major stressor causing impairment to the BMI communities in Malibu Creek fails on several counts.
    a. The Draft Malibu Benthic TMDL cites results that there was no significant correlation of IBI scores with macroalgal cover and one study found that IBI scores increased with microalgal cover.
    b. The Draft Malibu Benthic TMDL states there is "almost no correlation between algae coverage and either inorganic N or inorganic P concentrations."
    c. The stressor analysis diminishes or dismisses the impacts of natural watershed conditions, invasive species, and other potential toxicants, such as pyrethroid pesticides, as stressors that could be significant contributing factors.

3. The NNE analysis conducted is flawed and does not support the need to lower the allocations. The modeling tools used for the analysis have some inherent biases and other technical issues that could influence the results and the results do not appear to accurately predict conditions in the Malibu Creek watershed.

4. The data from reference reaches is not sufficient to demonstrate the need for lower values nor does it appropriately account for true reference conditions in the watershed.

5. The Draft Malibu Benthic TMDL does not provide any technical justification for including winter season or wet weather allocations. The only references to the need for year round and wet season allocations are statements that Malibu Lagoon is most sensitive to nutrient loads delivered during winter storms and stored within the estuary and that algal coverage is high year round. However, no technical information is provided to link the selected targets and allocations to the nutrient loads delivered to the lagoon that may be of concern or to the biological impairments addressed by the Draft Malibu Benthic TMDL. Additionally, no algal biomass or percent cover data is presented to demonstrate an impairment in wet weather nor is any technical analysis provided to show that additional reductions in nutrients are required during the winter season, and particularly during wet weather.

Hall of Administration L # 1600
800 S. Victoria Avenue, Ventura, CA 93009 • (805) 654-2018 • FAX (805) 654-3952 •http://www.ventura.org/pwa

6. The proposed nutrient targets and allocations are likely unachievable and thus are infeasible with available technology for stormwater treatment (See Attachment C).

Furthermore, the Draft Malibu Benthic TMDL does not provide sufficient technical information to justify the additional nutrient reductions will result in improvements to the benthic community impairments, or provide analysis that shows lower allocations for Ventura County MS4s are necessary to address any downstream impairments. On page 9-12, the Draft Malibu Benthic TMDL acknowledges that "nutrient concentrations were not limiting on algal growth in Malibu Creek" and the discussion above shows that the linkage between algal biomass and benthic community impacts is flawed. As a result, we believe it is an inappropriate use of public funds to require significant expenditures to address nutrient reductions that the Draft Malibu Benthic TMDL does not demonstrate will result in achievement of the goals of improving benthic community conditions, particularly when another TMDL, i.e. 2003 Malibu Nutrient TMDL, already exists to control nutrient discharges in the watershed. This makes this proposed TMDL duplicative and unnecessary.

REQUESTED ACTION: We kindly request that the proposed nutrient allocations and targets be removed from the Malibu Benthic TMDL. Alternatively, that the allocations and targets from the 2003 Malibu Nutrient TMDL be substituted in the Malibu Benthic TMDL.

III. Removal of Benthic Macroinvertebrate Targets and Allocations for Malibu Creek and Malibu Lagoon

Comment 6-3

Our final concern is that the Draft Malibu Benthic TMDL is setting targets and allocations for benthic macroinvertebrates that are inconsistent with the direction the State Water Resources Control Board is going with the development of the Biological Objectives for the State of California. While we recognize that the policy is not yet developed, the State has made some determinations and developed scientific information that are relevant and were not considered as part of the Malibu Benthic TMDL development. These elements include:

1. The SC-IBI is not appropriate for setting biologically based objectives due to the lack of appropriate reference sites and conditions for many locations in California, including the Malibu Creek watershed.
2. The scientific advisory group for the biological objectives is currently recommending that a multi scoring tool approach be used that does not rely solely on one index (such as the O/E).

3. The science advisory group is recommending consideration of a "grey area" for setting thresholds for biological objectives within which additional data would be collected before determining whether an impairment exists.

The Draft Malibu Benthic TMDL sets two separate targets based on the SC-IBI and O/E, neither of which are currently being recommended for the biological objectives for California. Additionally, the analysis in the Draft Malibu Benthic TMDL is based on reference conditions that do not adequately represent the conditions in the Malibu Creek watershed, particularly the presence of the Modelo formation.

Additionally, we feel it is inappropriate to include targets for benthic macroinvertebrates in the Draft Malibu Benthic TMDL, since they are not pollutants as defined under the Clean Water Act. The U.S. District Court for the Eastern District of Virginia recently ruled that U.S. EPA exceeded its authority in establishing a flow-based TMDL[1]. This case ruled that U.S. EPA cannot use surrogates in place of regulating pollutants. According to the case, U.S. EPA is charged with "establishing TMDLs for appropriate pollutants; that does not give them the authority to regulate nonpollutants." The term "pollutant" is defined in the CWA as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." 33 U.S.C., § 1362(6). Benthic macroinvertebrates are not defined as pollutants by the Clean Water Act.

However, there are benthic macroinvertebrate targets in the Draft Malibu Benthic TMDL and those targets are additionally assigned as in-stream allocations that are required to be included in the NPDES permits for dischargers. On page 10-13, the Draft Malibu Benthic TMDL states "The biological response numeric targets for Malibu Creek and Lagoon are directly linked to the allocations and should be placed into the applicable regulatory mechanism (i.e., NPDES permit) in order to ensure that the benthic community condition achieves the water quality objectives". As result, this Draft Malibu Benthic TMDL is inappropriately regulating nonpollutants through the inclusion of benthic macroinvertebrate targets and corresponding in-stream allocations. By extension, it is also arguable that listings for such non-pollutant based impairments are also inappropriate under the Clean Water Act. Thus, the original listing is inappropriate, and therefore improperly the subject of this TMDL.

[1] Virginia DOT v. EPA, E.D. Va., No. 1:12-cv-775, 1/3/13

We feel that the establishment of benthic macroinvertebrate targets at this time could lead to confusion and conflict with the policies being developed by the State of California, the inability to develop a true assessment of problems and impairments in the watershed using science being developed by the State, and could result in significant expenditures of public resources to address a problem that may not exist or may be caused by the natural conditions in the watershed.

REQUESTED ACTION: We kindly request the removal of the SC-IBI, O/E and species richness targets for Malibu Creek and Malibu Lagoon from this TMDL.

IV. Additional Clarifications

In addition to the three major points discussed above, the Draft Malibu Benthic TMDL includes a number of inconsistencies, confusing statements and other items that need to be clarified. A detailed list of these items is included in Attachment B. However, here are the key points that we feel require clarification:

1. The Draft Malibu Benthic TMDL should clarify that the entire watershed is not under the jurisdiction of an MS4 permit. MS4s do not have responsibility for or jurisdiction over agricultural and open space discharges, or areas that do not drain through an MS4 system. Comment 6-4
2. The Draft Malibu Benthic TMDL should clearly identify the impairments and reaches covered by the TMDL. TMDL targets should only apply to the main stem of Malibu Creek and Malibu Lagoon, and in-stream allocations should only apply to those reaches. Comment 6-5
3. The in-stream allocations should clearly be identified as not applying as end-of-pipe limits and that permit limits need to be developed by translating the in-stream values to applicable effluent limitations. Additionally, the requirement to include permit limitations for the biological and algal response targets should be removed. Comment 6-6

REQUESTED ACTION: We kindly request the clarifications listed above, and in Section 8 of Attachment B be made to the Draft Malibu Benthic TMDL.

SUMMARY

We appreciate your consideration of these comments and requests as outlined above in our letter. We hope these comments are viewed in a constructive manner, and we want to assure you we are available to meet with you at your convenience to discuss them, and any potential options to resolve some of our concerns. We value our on-going relationship, and work with U.S. EPA staff in protection of the environment and water quality in Ventura County. If you have any questions, please feel free to contact me at 805-654-5051 or email at Gerhardt.Hubner@ventura.org

Sincerely,

Gerhardt Hubner
Deputy Director

Attachments:

A. Discussion Supporting Removal of Sediment WLAs for Ventura County MS4s
B. Discussion Supporting Removal and Adjustment of Nutrient Targets and WLAs for Ventura County MS4s and Removal of Benthic Macroinvertebrate Targets and Allocations
C. Technical Achievability Assessment of the Malibu Creek and Ventura River Nutrient TMDLs

Cc: Tully Clifford, Director Ventura County Watershed Protection District
Jeff Pratt, Director, Ventura County Public Works
Al Boada, Assistant County Counsel, County of Ventura
Ewelina Mutkowska, Stormwater Program Manager, County of Ventura
Sam Unger, Executive Officer, Los Angeles Regional Water Quality Control Board
Alexis Strauss, Assistant Regional Director, U.S. EPA Region IX
Bob Carson, Environmental Programs Administrator, City of Thousand Oaks
Geremew Amenu, Program Manager, County of Los Angeles
Henry Graumlich, Chair, Calleguas Creek Watershed Committee
Joe Bellomo, Chair, Malibu Creek Watershed Committee

ATTACHMENT A

Discussion Supporting Removal of Sediment WLAs for Ventura County MS4s

This attachment provides technical support for the request to remove sedimentation waste load allocations (WLAs) for unincorporated Ventura County and City of Thousand Oaks MS4s. The request is made based on the belief that MS4 WLAs controlling for sediment supply in the upper watershed will not address the excess sedimentation impairment in main stem Malibu Creek because:

1. Ventura County MS4s contribute only a minor fraction (significantly less than 10%) of total sediment loading in the watershed annually.

2. Unincorporated Ventura County and the City of Thousand Oaks MS4s are located in the upstream reaches of the Malibu Creek Watershed and sediment loading to main stem Malibu Creek from such MS4s is disrupted by a sequence of dams which obstruct downstream sediment transport.

3. Post-construction/hydromodification requirements in the Ventura County MS4 NPDES permit, with which unincorporated Ventura County and the City of Thousand Oaks must comply, address the potential impacts of urban development on increases to in-stream work, which is a key cause of the sedimentation and habitat/biota impairments based on the Draft TMDL stressor analysis.

Furthermore, it is likely that sedimentation impairments result from hydromodification (i.e., the alteration of watershed processes such as water balance, surface and near surface runoff, groundwater recharge, and sediment delivery and transport associated with changes in land use) and therefore should be managed as such. Hydromodification is statutorily considered pollution rather than a pollutant, and would therefore not be subject to regulation through TMDLs. Lastly, there are several inaccuracies in the technical approach to developing sedimentation WLAs that are not consistent with the state of the practice for hydromodification management (Hydromodification Assessment and Management in California, SCCWRP Technical Report 667, April 2012, Managing Runoff to Protect Natural Streams: the Latest Development on Investigation and Management of Hydromodification in California, Stein et al, 2005), most notably that WLAs which require a reduction in supply to a reach where in-stream erosion is occurring will exacerbate sedimentation by starving already hungry water of its sediment transport capacity. Justification for the removal of sedimentation WLAs for the unincorporated Ventura County and City of Thousand Oaks with respect to the above points is provided below in addition to notes on the inaccuracies of the technical approach used to develop WLAs.

Detailed Discussion and TMDL Comments

Ventura County MS4s Contribute Minor Fraction of Total Sediment Loading and Work: The Draft TMDL designates WLAs to MS4s for sedimentation and nutrients which are intended to address, in part, the listing of Malibu Creek on the 303(d) list for sedimentation and benthic macroinvertebrates impairments. The TMDL does not provide sufficient evidence linking the sedimentation impairment to MS4s and in fact, there is a wide body of evidence available suggesting that MS4s contribute only a minor fraction of the total watershed sediment load.

The table below summarizes lognormal mean total suspended solids (TSS) event-mean concentrations (EMCs) developed based on land use monitoring throughout Los Angeles and Ventura Counties. These data indicate that the average EMC (not accounting for site-specific land use distributions) for urban land uses which fall under the jurisdiction of MS4s is 105 mg/L. This is far below the average EMC for non-urban land uses, such as agriculture and vacant/open space land uses, which is 608 mg/L.

Furthermore, estimates of TSS loading based on the default EMCs and runoff coefficients in the LARWQCB-approved Structural BMP Prioritization and Analysis Tool[1] (SBPAT) (Geosyntec, 2008), Southern California Associations of Governments (SCAG, 2005) land use and mean watershed precipitation values, indicates that areas draining to or through unincorporated Ventura County or City of Thousand Oaks MS4s contribute only 10% of the total TSS load to the downstream dams[2]. Moreover, if it is considered that dams trap between 90 and 100 percent (Mount, 1995) of the sediment load that is supplied to them, the percentage contribution by unincorporated Ventura County and City of Thousand Oaks MS4s to the downstream impaired reach of Malibu Creek then the 10% would be further significantly reduced.

[1] SBPAT was developed for Los Angeles County, City of Los Angeles, Heal the Bay, State Water Resources Control Board, and the Los Angeles Regional Water Quality Control Board.

[2] This estimate is based on land-use based water quality modeling of the 85th percentile 24-hour storm event and does not include open space and agricultural land uses draining to or through modeled MS4s. It is recognized that there are more comprehensive analyses that can be conducted to estimate watershed sediment yield (e.g. sediment yield analyses such as GLU, RUSLE) however SBPAT was used based on model availability to get a rough estimate of MS4 contributions, relative to total drainage area loads.

Land Use	Log-transformed Arithmetic Mean* EMC (mg/L)[3]
Commercial	67
Industrial	219
Transportation	78
Education	100
Multi-Family Residential	40
Single-Family Residential	124
Agriculture	999
Vacant/Open Space	217

* most land use EMC datasets are most closely represented by the lognormal distribution, therefore log-mean computations are conducted in log-space and transformed back to arithmetic space for reporting purposes.

Dams Disconnect Impaired Reach from Ventura County MS4s: The dams located between unincorporated Ventura County and City of Thousand Oaks MS4 outfalls and the main stem of Malibu Creek act as a partial obstruction to downstream sediment transport, thereby both 1) limiting the sediment supplied by the upper watershed to the main stem of Malibu Creek (as it is initially discharged into the channel in the upper reaches of the watershed, but enters the main stem of Malibu Creek only after downstream transport by channel flows), and 2) exacerbating in-stream erosion downstream.

The impacts of dams on the hydrologic and sediment regimes of creeks have been well documented (see Chapter 16 of California Rivers and Streams, "The Daming of California's Rivers", Jeffrey Mount, 1995). In general, the construction of dams is accompanied by ***reductions in the size and quantity of sediment supply*** and decreases in peak and total discharge to downstream reaches. It is estimated that large dams ***trap between 90 and 100 percent of the sediment load*** that is supplied to them (Mount, 1995). These impacts in turn affect channel morphology typically resulting in aggradation upstream and ***erosion downstream of the dam***, hydraulic readjustments related to changes to the flow regime, and changes to bed and bank materials (i.e., dams prevent the downstream movement of coarse bedload).

[3] These data are primarily based on a study conducted by Los Angeles County for which they monitored eight land use stations. Details on the Los Angeles County study can be found in the Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, 2000 and Los Angeles County 2000-2001 Stormwater Monitoring Report, 2001. It was supplemented by agricultural runoff data from Ventura County Flood Control District NPDES monitoring efforts (VCFCD, 1997-2003).

There are several dams and lakes in the watershed that were constructed for water supply and recreation including Eleanor Dam, Sherwood Dam, Malibou Dam, Century Dam, Westlake Dam, Rindge Dam, Potrero Dam and Lindero Dam. Approximately 97% of the Malibu Creek watershed drains through a dam prior to discharge into Malibu Lagoon. The unincorporated Ventura County (and by reference, Ventura County Watershed Protection District [VCWPD]) and City of Thousand Oaks urban areas, which would be regulated under their MS4 WLAs, all drain through at least one dam prior to being discharged into the main stem of Malibu Creek, and some drain through up to three dams prior to being discharged into the main stem.

These dams have significantly modified the flow and sediment regime of Malibu Creek. Because there are so many dams in sequence, Malibu Creek has become a highly compartmentalized system, composed of numerous localized flow and sediment regimes, not significantly impacted by process changes in upstream or downstream segments. For example, while main stem Malibu Creek is considered a perennial stream, some reaches have been observed to be seasonally dry, including the reaches associated with monitoring locations MC-12, R-9 and MC-1. Such reaches are immediately downstream of Century Dam (MC-12 and R-1) and Rindge Dam (MC-1), which likely restrict flows from discharging to downstream reaches under some conditions resulting in intermittent flows in these reaches.

Furthermore, it is estimated that Rindge Dam itself has sequestered 52,000 tons of sediment since construction (Preliminary Malibu Creek Environmental Restoration Feasibility Study documents). That is the equivalent of 604 tons per year, which is more than the loading estimated from unincorporated Ventura County and City of Thousand Oaks combined (approximately 420 tons/year based on land use-based modeling discussed above) and 10% of the natural average annual total watershed sediment load estimated by the TMDL. These numbers do not include the sediment sequestered by the seven other dams in the watershed. While it seems like this sediment removal from the system would help the excess sedimentation impairment, studies have shown that sediment sequestration behind dams leaves dam discharges looking for sediment to maintain transport capacity, resulting in downstream channel bed and bank erosion, thereby exacerbating the excessive sedimentation issue in areas downstream of dams (see Chapter 16 of California Rivers and Streams, "The Daming of California's Rivers", Jeffrey Mount, 1995).

MS4 Sediment Loading is Addressed by Existing Programs: Furthermore, new requirements included into Order No. 09-0057 NPDES Permit No. CAS004002 Waste Discharge Requirements for Storm Water (Wet Weather) and Non Storm Water (Dry Weather) Discharges from the MS4 within the Ventura County Watershed Protection District, County of Ventura, and Incorporated Cities Therein (Ventura County MS4 NPDES Permit), with which both unincorporated Ventura County and the City of Thousand Oaks must comply, address the impacts of land use changes on watershed processes such as the channel flow and sediment transport regimes. Under the Planning and Land Development Program portion of the Ventura County MS4 NPDES Permit, permittees are required to ensure that qualifying project applicants:

- Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development towards existing communities via infill or redevelopment, safeguarding of environmentally sensitive areas, mixing of land uses (e.g., homes, offices, and shops), transit accessibility, and better pedestrian and bicycle amenities.

- Minimize the adverse impacts from storm water runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of waterbodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100).

- Minimize the percentage of effective impervious surfaces on land developments to mimic predevelopment water balance through infiltration, evapotranspiration and reuse.

- Minimize pollutant loadings from impervious surfaces such as roof-tops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs (including Source Control BMPs such as good housekeeping practices), Low Impact Development Strategies, and Treatment Control BMPs.

- Properly select, design and maintain Treatment Control BMPs and Hydromodification Control BMPs to address pollutants that are likely to be generated, assure long-term function, and to avoid the breeding of vectors.

- Prioritize the selection of BMPs suites to remove storm water pollutants, reduce storm water runoff volume, and beneficially reuse storm water to support an integrated approach to protecting water quality and managing water resources in the following order of preference: 1) infiltration BMPs, 2) BMPs that store and reuse storm water runoff, 3) BMPs that incorporate vegetation to promote pollutant removal and runoff volume reduction and integrate multiple uses, 4) BMPs which percolate runoff through engineered soil and allow it to discharge downstream slowly, 5) approved modular, proprietary treatment control BMPs that are based on LID concepts that meet pollution removal goals.

Such requirements address the impacts of land use changes on the flow and sediment regime of Malibu Creek Watershed through the control for and mitigation of potential flow modifications which result from increases in imperviousness. In this way, they serve as a clear, logical regulatory structure that is already in place and, over time, will support the objectives of the Draft TMDL more directly and effectively than the MS4 sedimentation WLAs.

Additional Technical Considerations: Lastly, in review of the methods used to develop the sedimentation WLAs, the following technical inaccuracies are noted, given the current state of the practice as described in Hydromodification Assessment and Management in California, SCCWRP Technical Report 667 (SCCWRP, 2012). Much of the data required to bring the analysis up to practice standards are available and are discussed in Preliminary Draft documents related to the Malibu Creek Restoration Feasibility Study.

In-stream erosion will be exacerbated if Draft sediment WLAs are implemented: The Draft TMDL, in discussion of sedimentation as a major stressor states that, "Increased sedimentation can arise from both upland and in-channel sources; however, it is most strongly associated with *changes in the flow regime* that cause channel instability". Average annual sediment load-based WLAs, (i.e., Ventura County MS4 is allocated a specific load of sediment that they can discharge on an annual basis[4]), as currently defined, will not effectively address the excess sedimentation stressor, defined as in-stream erosion, which is dependent both on stream work and sediment availability. By requiring only a reduction in supply to a reach where in-stream erosion is occurring, the TMDL is expected to exacerbate sedimentation by starving already hungry water of its sediment transport capacity. Therefore, MS4 sediment load-based WLAs should be removed from the TMDL and the TMDL should instead state that this 303(d) listing is being addressed by existing programs (Ventura County MS4 NPDES Permit).

Open space sources are significant and should be accounted for: Currently, the Draft TMDL designates permitted MS4s as the only parties responsible for addressing the sediment impairment. This list does not seem comprehensive and should include those organizations that conduct roadside maintenance activities and brush clearing practices (i.e. National Park Service, California State Parks) to manage sediment supply from "natural" areas to the extent practical. Based on the land use-based modeling described above, open space land uses contribute approximately 50% of the total TSS load supplied to the impaired reach. Furthermore, much of Malibu Creek's soils are considered highly erodible and it is likely that sediment loads to receiving waters have increased due to brush clearing and roadside maintenance activities where dirt and debris are left on the side of the road or up-slope of creeks. Open space contributions likely comprise even more than 50% of total TSS loads to the impaired reach since the estimate does not account for erosion resulting from the large expanses of natural areas with dirt roads and fire hazards.

---

[4] Although this maximum sediment mass-based WLA was set based on an annual *average* value (i.e., roughly half of the years could exceed this while still meeting EPA's estimated pre-development-based loading capacity, over a longer period of time), no allowable WLA exceedances are currently permitted in the draft TMDL.

Evidence providing a link between MS4s and the sedimentation impairment is not provided: Sedimentation WLAs are allocated to permitted MS4s draining urbanized areas within the watershed based on imperviousness. The conceptual model presented in Section 9 indicates that MS4s are related to sedimentation, which is associated with reduced habitat quality, which itself is related to impaired biology. However, in discussion of reduced habitat quality due to sedimentation, the TMDL states that physical habitat scores throughout the watershed are "generally acceptable and do not appear to correlate with the SC-IBI scores" suggesting that there is no relationship between impaired biology and reduced habitat quality. Furthermore, evidence is not presented which suggests a relationship between imperviousness and sedimentation. While data presented suggests a relationship between low SC-IBI scores and imperviousness, there is no data which directly links imperviousness to sedimentation Therefore, data is presented indicating a relationship between low SC-IBI scores and upstream imperviousness and literature is cited which indicates a relationship between sedimentation and reduced habitat quality however a linkage between the sedimentation impairment and urban areas draining through MS4s is not drawn.

Work associated with instantaneous peak flows is not reflective of "effective" work: To measure the impact of urbanization on watershed hydrology and morphology, the Draft TMDL attempts to compare the "effective" work in the channel prior to and following development, intended to represent the cumulative forces resulting in downstream sediment movement. To do this, the instantaneous work at one channel cross-section (LADPW F-130 gage) is calculated for the pre-development and post-development 2-year and 10-year peak flows. This approach does not reflect the state of the practice for hydromodification management (SCCWRP Technical Report 667, April 2012; Stein et al, 2005) and oversimplifies the impacts of urbanization on watershed hydrology and channel morphology. While urbanization has been shown to increase the magnitude of stormflows, it has also been shown to increase the frequency of flood events, decrease the lag time to peak flow and quicken the flow recession, the combined effects of which modify the living conditions for in-stream biota as well as the morphologic regime and in-stream biota habitat structure (SCCWRP Technical Report 667, April 2012). While it may not be practical to address all such variables, the state of the practice for hydromodification assessment suggests that "effective" work is best estimated based on flow durations (available based on USGS gage data for one location and published in Pre-Draft), which is state of the practice for hydromodification assessment (SCCWRP Technical Report 667, April 2012), instead of instantaneous peak flows.

The change in instantaneous work at one cross-section is not reflective of changes to the sediment regime of a watershed: Currently, post-development impacts are evaluated for a 10 mile reach based on the change in work associated with the 2 and 10 year peak flows prior to and following development at one cross-section which does not effectively address the range of conditions throughout the reach. Furthermore, the post-development impacts analysis was made based on the marriage of hydrology from one-channel location, located approximately 5 miles upstream of the lagoon, with channel geometry data from a location immediately upstream of the lagoon. In-stream work is a site-specific parameter, dependent on hydrology and morphology from the same location. The use of hydrology and morphology from different locations in the calculation of work at one location greatly reduces its validity.

Thank you for the opportunity to review and comment on the Draft TMDL. We appreciate your consideration of removal of sedimentation WLAs for at least the upper watershed MS4 permittees based on the above. We would be happy to collaborate with you in further development of this TMDL to address our joint concerns using an analytical approach reflective of the state of the practice and inclusive of existing efforts. If you have any questions, please feel free to contact Ewelina Mutkowska at the County of Ventura Watershed Protection District at (805) 645-1382 or Ewelina.Mutkowska@ventura.org.

ATTACHMENT B

Discussion Supporting Removal and Adjustment of Nutrient Targets and WLAs for Ventura County MS4s and Removal of Benthic Macroinvertebrate Targets and Allocations

This attachment provides technical support for the request to remove or modify the nutrient WLAs for unincorporated Ventura County, Ventura County Watershed Protection District and City of Thousand Oaks MS4s (Ventura County MS4s) and the request to remove the benthic macroinvertebrate targets and allocations for Malibu Creek and Malibu Lagoon. In addition, the attachment provides support for additional recommended changes to clarify the Draft TMDL. The technical justifications for these requests are organized as follows:

1. We request that wasteload allocations for Ventura County MS4s be removed from the Draft TMDL. The Draft TMDL does not identify any impairments in reaches to which the MS4s discharge that are not already addressed by the 2003 Nutrient TMDL and does not provide a linkage as to how discharges from Ventura County MS4s are impacting the main stem of Malibu Creek or Malibu Lagoon.
2. The information provided for the revisions to the nutrient targets and allocations are insufficient to justify lower targets and allocations for total nitrogen and total phosphorus than are outlined in the 2003 Malibu Creek Nutrient TMDL.
    a. The nutrient analysis provided in the Draft TMDL does not justify lowering the targets and allocations at this time.
    b. The Draft TMDL does not provide sufficient linkage between nutrient concentrations and the BMI impairments.
    c. The NNE analysis is flawed and does not support the need to lower the allocations.
    d. The data from reference reaches is not sufficient to demonstrate the need for lower values nor does it appropriately account for true reference conditions in the watershed.
    e. The need for lower wet season targets is not justified in the Draft TMDL.
    f. The proposed nutrient targets and allocations are likely unachievable with available technology for stormwater treatment.
3. The Draft TMDL presents macroinvertebrate targets that are inconsistent with the approach being developed by the State Board for biological objectives. Additionally, recent court decisions have clarified that TMDLs may not regulate non-pollutants. As a result, we feel the benthic macroinvertebrate targets and in-stream allocations should be removed from the Draft TMDL.
4. The discussion regarding MS4 jurisdictions in the Draft TMDL needs to be clarified. MS4s do not have responsibility for or jurisdiction over agricultural and open space discharges or areas that do not drain through an MS4 system.
5. The Draft TMDL targets and allocations should only apply to the main stem of Malibu Creek and Malibu Lagoon as these are the only listings being addressed by this Draft TMDL.
6. The Draft TMDL allocations section should clarify the meaning of in-stream allocations and remove requirements to include biological and algal response targets in NPDES permits.
7. The TMDL includes a number of other elements that should be clarified.

1 WASTELOAD ALLOCATIONS FOR THE VENTURA COUNTY MS4S SHOULD BE REMOVED FROM THE DRAFT TMDL

Comment 6-7

As discussed in Attachment A, approximately 97% of the Malibu Creek watershed drains through a dam prior to discharge into Malibu Lagoon. The Ventura County MS4s all drain through at least one dam prior to being discharged into the main stem of Malibu Creek, and some drain through up to three dams prior to being discharged into the main stem. These dams act as barriers to the transport of sediment and nutrients to the main stem of Malibu Creek during both dry and wet weather.

Additionally, as discussed in Attachment A, because there are so many dams in sequence, Malibu Creek has become a highly compartmentalized system, composed of numerous localized flow and sediment regimes, not significantly impacted by process changes in upstream or downstream segments. For example, while main stem Malibu Creek is considered a perennial stream, some reaches have been observed to be seasonally dry, including the reaches associated with monitoring locations MC-12, R-9 and MC-1. This observation is confirmed by Table 6-2 on page 6-4 of the Draft TMDL. The table shows that average flows in Malibu Creek are zero during most of the algae growing season. Additionally, Page 1-3 states *"Historically, there is little flow in the summer months; much of the natural flow that does occur in the summer in the upper tributaries comes from springs and seepage areas."* If there is no flow, how can nutrients from upstream discharges be impacting algal growth in Malibu Creek or Malibu Lagoon?

Given the hydrologic disconnect between Ventura County MS4s and the main stem, including allocations for addressing impairments in the main stem is not appropriate. The Draft TMDL does not provide any evidence that discharges from Ventura County MS4s are linked to the impairments in the main stem. Additionally, as will be discussed in detail in the remaining portions of the letter, a TMDL for nutrients already exists in the Malibu Creek Watershed. In order to justify modifications to the 2003 Nutrient TMDL for the Ventura County MS4s, the Draft Benthic TMDL would need to provide information demonstrating that lower allocations and targets are required in Ventura County to address the impairments in the main stem of Malibu Creek. We do not feel that linkage has been made in the Draft TMDL.

The Draft Benthic TMDL includes an analysis of IBI and O/E scores throughout the Malibu Creek Watershed. Two of the sites evaluated are located within Ventura County, LV-9 and PC-8. Both of these sites have median IBIs over the Draft TMDL's proposed threshold for defining impairment (40). Although we recognize these sites are not downstream of MS4 discharges, there are no other sites located within Ventura County that demonstrate an impairment due to Ventura County MS4 discharges. The majority of sites where benthic macroinvertebrate data were collected are below dams that would significantly moderate the influence of discharges from Ventura County and all sites are downstream of significant urban areas within Los Angeles County. As the Draft TMDL does not provide any modeling to show nutrient discharges from Ventura County are being transported to the main stem and no monitoring sites demonstrate impairments within Ventura County, a linkage between Ventura County MS4s and the impairments being addressed by the Draft TMDL has not been demonstrated.

Additionally, no data were presented in the Draft TMDL that demonstrated exceedances of algal coverage in Ventura County. An excel file of the algal percent coverage data used in the Draft TMDL analysis was obtained from USEPA. Although we have concerns about the use of this data for evaluating algal impairments in the watershed (as discussed in more detail later in these comments), these data were used in the Draft TMDL analysis and are the only data available for consideration. A review of the data showed that no percent cover observations were collected in Ventura County since 2006. The only site that could receive discharges from Ventura County MS4s that has recent percent cover observations is on Triunfo Creek at Kanan Road, which is downstream of Westlake Lake. At this site, no observations of mat algal percent cover greater than 60% or floating algal cover over 30% were recorded since 2006 (though observations do not appear to have been made in 2007 and 2008). These data do not support requiring allocations in this Draft TMDL for Ventura County MS4s since the only monitoring site downstream of Ventura County MS4 discharges with recent observations is meeting the 2003 Nutrient TMDL algal percent cover targets.

Given that a TMDL already exists that assigns nutrient WLAs to the Ventura County MS4s, the majority of the Ventura County MS4 discharges pass through one or more dams prior to being discharged to the main stem of Malibu Creek, and no information has been provided that demonstrates a linkage specifically between the Ventura County MS4 discharges and benthic impairments, we request that the Ventura County MS4 WLAs for nutrients be removed from this Draft TMDL or replaced by the WLAs included in the 2003 Nutrient TMDL. Further justification for this request is included in Section 2.

2 THE NUTRIENT TARGETS AND ALLOCATIONS SHOULD BE REMOVED OR SET EQUAL TO THE 2003 NUTRIENT TMDL TARGETS AND ALLOCATIONS

A TMDL to address impairments due to excessive algal growth due to nutrients is already in effect in the Malibu Creek watershed (2003 Nutrient TMDL). The Draft Benthic TMDL provides a number of analyses to justify the inclusion of lower, year round targets and allocations for nutrients. However, we feel that the arguments are not justified and a linkage to discharges from Ventura County MS4s has not been provided. The following arguments demonstrate that:

1. The Draft TMDL targets established in the 2003 TMDL are not yet met and therefore it is too soon to determine additional reductions are necessary.
2. The Draft TMDL does not establish clear linkages between BMI impairments, algal percent cover or algal biomass, or nutrients.
3. The use of the NNE analysis to justify the need for lower targets and allocations was technically flawed.
4. The calculation of allocations based on reference conditions does not present sufficient information to justify lower allocations and does not account for natural conditions in the watershed.
5. The basis for including winter season and particularly wet weather allocations has not been demonstrated, particularly for Ventura County MS4s whose discharges are unlikely to have significant impacts on the main stem of Malibu Creek and Malibu Lagoon.

2.1 The Draft TMDL Incorrectly Evaluated Whether The Summertime Target From The 2003 Nutrient TMDL Is Too Lenient To Control Algal Coverage. Comment 6-8

The Draft TMDL justifies revising the nutrient targets for Malibu Creek Watershed by concluding that the Total Nitrogen (TN) allocations in the previously adopted 2003 Nutrient TMDL were too lenient, and are preventing attainment of algal percent cover targets.

"Strong evidence indicates that the nutrient targets established in the 2003 TMDL have mostly been met; however Busse et al's (2003) study and the overwhelming data on the algae and macroalgae coverage in the streams and mainstem since the 2003 TMDL suggest that the assimilative capacity was substantially overestimated." (Draft TMDL, p. 10-10)

Necessary support for this argument is evidence that the nitrogen allocations from the 2003 TMDL have already been achieved in the watershed; otherwise, there would be no basis for concluding that the 2003 allocations were inadequate. The information presented in the Draft TMDL to justify revised targets is presented in Sections 7.5.1 and 8.3. The Draft TMDL mistakenly refers to the summer N target from the 2003 Nutrient TMDL as a nitrate-plus-nitrite (NO3/2) target (the 2003 target was for TN)[1], and then proceeds to develop an argument as follows:

1. If NO3/2-N is typically below 1 mg/L at a particular site(s), (and thus the 2003 TMDL target is being met), and
2. algal coverage exceeds its target in the same locations, then
3. the TN target from the 2003 TMDL was not strict enough, and lower targets are needed to drive algal mat percent cover lower.

The Draft TMDL's rationale for revising the nutrient targets falls apart at all three levels, as follows:

1. The Draft TMDL uses the wrong kind of nutrient data to evaluate the first part of the argument. The Draft TMDL is incorrect in asserting that the TN targets from the 2003 TMDL are generally met. Inspection of available TN data does not reveal that the 2003 TMDL's summertime target of 1.0 mg/L is generally met in the watershed.
2. Percent cover data is presented in the Draft TMDL for (apparently) only three sites in the watershed, and is inadequate evidence that the 2003 TMDL's algal coverage target is exceeded at non-reference sites. In addition, no algal coverage data from reference sites *within* the Malibu Creek Watershed are presented.
3. Paired TN and algal coverage data are not presented or evaluated, so the Draft TMDL has not determined whether particular TN levels (high or low) are associated with particular degrees of algal coverage (high or low).

More information about the flaws in the Draft TMDL's argument is presented below.

2.1.1 The Draft TMDL makes its argument for revising nutrient targets using the wrong N target.

The summer N target from the 2003 TMDL was for Total Nitrogen, not NO3/2-N. The adequacy of the previous TMDL target for nitrogen has to be evaluated using Total Nitrogen data, not nitrate data. If TN data are consulted, it becomes apparent that the summer N target from the 2003 TMDL is not being "mostly met".

[1] The Draft TMDL mischaracterizes the 2003 TMDL target as being for nitrate+nitrite throughout the document.

Only two monitoring programs described in the Draft TMDL monitored for all three constituents that allow calculation of TN (nitrate, nitrite, and TKN) in receiving water; the Malibu Creek Watershed Monitoring Program (MCWMP) and the LACDWP MS4 Mass Emission site monitoring. In Table 7-8 of the Draft TMDL, median TN concentrations are presented for six "selected stations" from the MCWMP (the program uses 13 sites).[2] The table in the Draft TMDL appears to imply that the majority of sites in the watershed have summer TN values less than 1.0 mg/L, because this appears true for 4 out of 6 of the sites included in the table. In Table 1 below, summer mean and median TN concentrations are provided for all 13 of the MCWMP sites, plus the LACDWP MS4 Mass Emission site. Median TN concentrations for 10 out of 14 sites exceed the 2003 TMDL target for TN during the summer.

In addition, according to Section 7.5, nutrient concentrations at monitoring stations on Malibu Creek are characterized by excursions above the summer and winter nutrient targets from the 2003 Nutrient TMDL.

[2] The summer median value for Site CC (0.06 mg/L) is an order of magnitude lower than the median value obtained by this commenter using MCWMP data. USEPA should check the median for this site.

Table 1. Mean and median concentrations of total nitrogen (TN) for the summer season (Apr. 15-Nov. 15) for all available sites where total nitrogen has been measured. With the exception of SO2, all data are from the Malibu Creek Watershed Monitoring Program (MCWMP).

Site	Description	Sample Size	Mean TN (mg N/L)	Median TN (mg N/L)
		Sites in LA County		
SO2	LA County MS4 Mass Emissions Site(1)	--	1.89	1.65
CC	Cold Creek(2)	14	0.61	0.57
LC	Liberty Canyon Creek(2)	18	2.77	1.75
LIN1	Lindero Creek, upstream from Lake Lindero(2)	15	1.47	1.41
LIN2	Lindero Creek, downstream from Lake Lindero(2)	14	2.11	1.94
LV2	Las Virgenes Creek(2)	18	3.49	3.67
MAL	Malibu Creek(2)	18	0.76	0.64
MED2	Medea Creek(2)	16	0.78	0.72
RUS	Russel Creek(2)	14	2.93	2.69
TRI	downstream from Westlake(2)	15	1.40	1.44
		Sites in Ventura County		
HV	Hidden Valley Creek, drains into Lake Sherwood(2)	2	13.28	13.28
POT	immediately upstream from Westlake(2)	1	1.44	1.44
		Sites on border between Ventura and LA counties		
LV1	Las Virgenes Creek(2)	18	1.58	1.49
MED1	Medea Creek (upstream from Malibou Lake)(2)	16	1.73	0.88

(1) Values for SO2 are from Table 7-9 in draft TMDL, summer values for 2005-2011.

(2) Data were collected April 2005-Nov 2006.

2.1.2 *Nitrate data cannot be used as a proxy for TN data to evaluate whether conditions in the watershed are meeting the previous TMDL target for N*

In absence of TN data, the Draft TMDL makes liberal use of data for NO3/2-N and inorganic-N to make inferences about presumed linkages between algal cover and total nitrogen concentrations, or to infer spatial or temporal patterns in TN concentrations. The use of nitrate as a proxy for TN is unwarranted and misleading. It is possible to compute the ratio between TN and NO3/2-N using data from the MCWMP. Ratios for all available samples for all 13 sites in the program are presented in Figure 1. As is evident from Figure 1, the proportion of TN accounted for by NO3/2-N is highly variable within sites, between sites, and within seasons. TN exceeds NO3/2-N by factors ranging from just over 1.0 to over 100. Based on this data, there is no justification for using NO3/2 data to evaluate whether the 2003 TMDL summertime targets for TN have been attained in the watershed, and no justification for alleging spatial trends or temporal trends in TN using nitrate-N or inorganic-N.

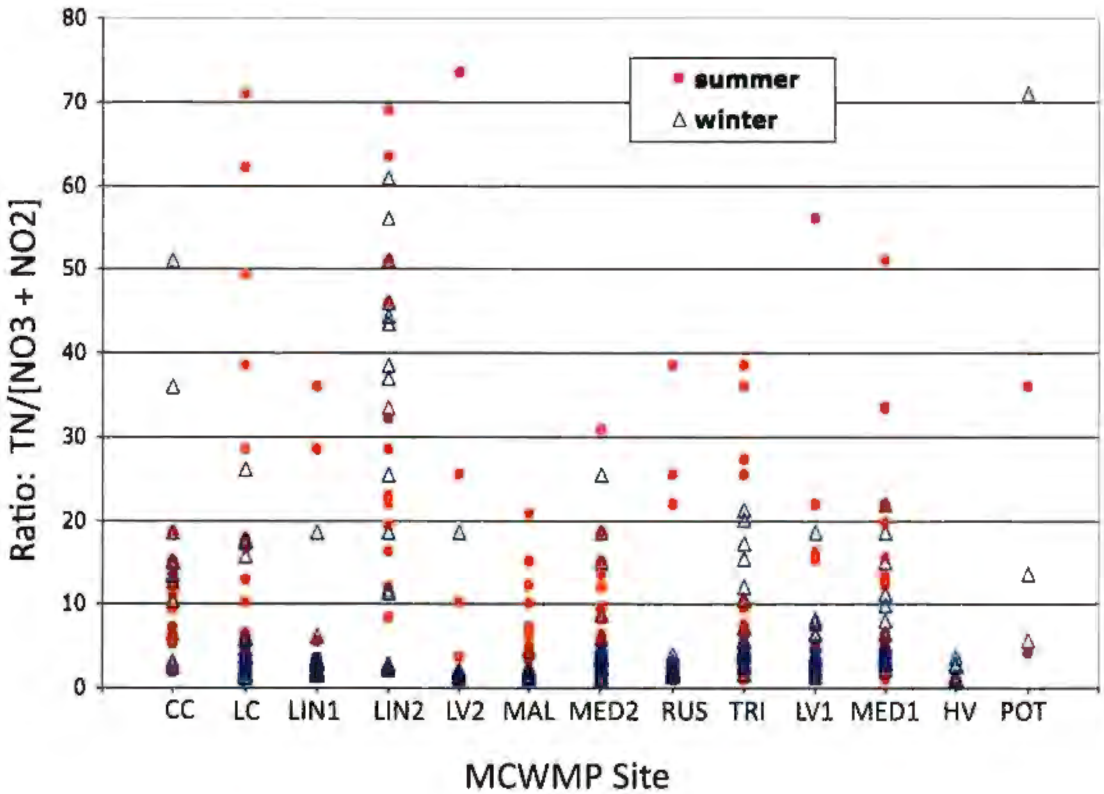


Figure 1. Ratios between Total Nitrogen (TN) and [Nitrate+Nitrite]-N at MCWMP monitoring sites in the Malibu Creek Watershed. Data were collected between February 2005-February 2007. Summer values are for samples collected Apr. 15-Nov.15; winter values are for samples collected Nov. 16-Apr.14. The four sites on the right side of the figure (LV1, MED1, HV, and POT) are in Ventura County or at the border between Ventura and Los Angeles counties. Two ratios were >80 and are not indicated in the graph: 109 for LIN2 on 9/9/05, and 376 for LC on 5/9/06.

2.1.3 The Draft TMDL does not demonstrate that nitrogen concentrations below the 2003 TMDL target are associated with algal percent cover exceedances.

As discussed in more detail above, colocated and concurrently collected data for TN and algal percent cover are not provided for any sites in the watershed (for either season), but are necessary to argue that TN concentrations below the 2003 Nutrient TMDL target are resulting in percent cover exceedances. Additionally, the excel file obtained from USEPA does not include TN concentrations (only nitrate) for comparison to the algal percent cover observations. Owing to the inability to treat nitrate-N as a proxy for TN, it is not sufficient to compare nitrate-N to percent cover data.

2.2 The Draft TMDL Does Not Provide Sufficient Linkage Between Nutrient Concentrations and BMI Impairments

Comment 6-9

The stressor analysis that was conducted to determine that elevated mat algal coverage resulting from excess nutrients as a major stressor causing impairment to the BMI communities in Malibu Creek fails on several counts as outlined below.

2.2.1 The Linkage Between BMI Impairments and Mat Algal Coverage and Nutrient Concentrations is Missing

The Draft TMDL authors cite elevated mat algal coverage resulting from excess nutrients as a major stressor causing impairment to the BMI communities in Malibu Creek. This linkage fails on several counts.

The Draft TMDL authors cite Luce (2003) results that there was no significant correlation of IBI scores with macroalgal cover, but still conclude that macroalgal cover as a contributing factor to low IBI scores. Luce (2003) also found that IBI scores significantly *increased* with microalgal cover (e.g., periphytic diatoms), which further contradicts the Draft TMDL linkage between nutrients, algae and BMI metrics in Malibu Creek. The Draft TMDL authors also acknowledge there is… "*almost no correlation between algae coverage and either inorganic N or inorganic P concentrations (Figure 8-21). Notably, 100 percent cover can occur at the lowest inorganic nutrient concentrations, while low cover is often found at high inorganic nutrient concentrations.*" Given the lack of correspondence between nutrient concentrations and algal mat coverage, or between increased algal coverage and decreased IBI scores, there can be no expectation that lower nutrient targets would result in less algal mat coverage, or a consequent increase in O/E or IBI scores.

The Draft TMDL linkage between algae and BMI metrics is based solely on co-occurrence of lower SC-IBI scores with elevated benthic algae coverage at non-reference sites. This evaluation ignores the fact that differences in O/E scores (which are more appropriate metrics than IBI scores for Malibu Creek) are better explained by their relationship to the Modelo formation than by mat algae coverage, nutrient concentrations, upstream imperviousness, or conductivity (see figures 8-12, 8-13, and 8-17 below). Note that although the Draft TMDL characterizes Las Virgenes Creek site HtB-LV-9 as a Modelo formation site, it is located at the upper edge of the formation and receives most of its flows from drainage above the Modelo formation. As a result, it may or may not be significantly influenced by the Modelo formation. Similarly, the Triunfo Creek location (TR-17) is characterized as a non-Modelo site, but receives much of its flow from the upstream Modelo formation drainage (Figures 4-4 and 7-1 of the Draft TMDL). When the

BMI metrics are evaluated based on the contributing drainages for the sites, the relationships between these metrics and the Modelo formation influence become clear and are more congruent than the relationships with nutrients, conductivity, or percent imperviousness.

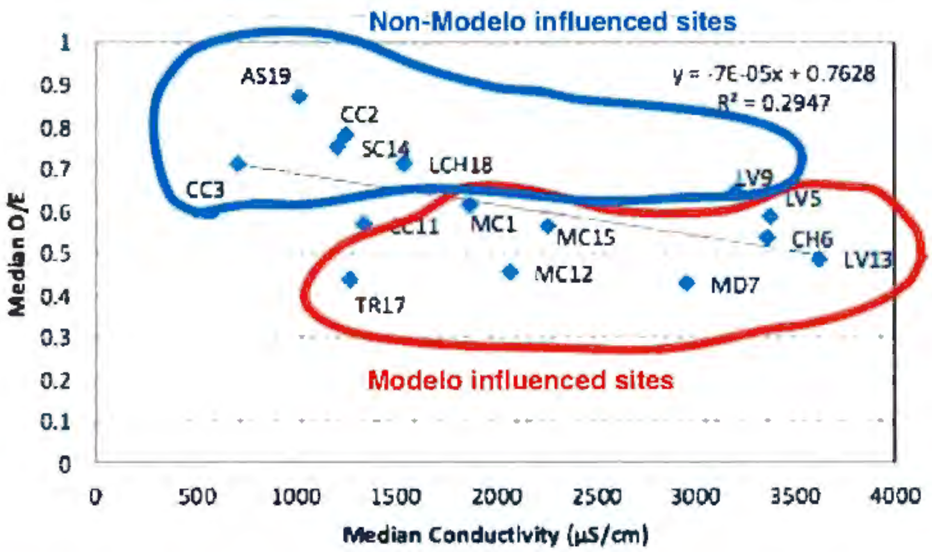


Figure 8-12. Correlation of Median O/E Scores with Median Conductivity.
Note: Sites with at least 5 observations, 2000 – 2010. Median shown for MC-1 combines LVMWD R-4 samples; median shown for MC-15 combines LVMWD R-13 samples.

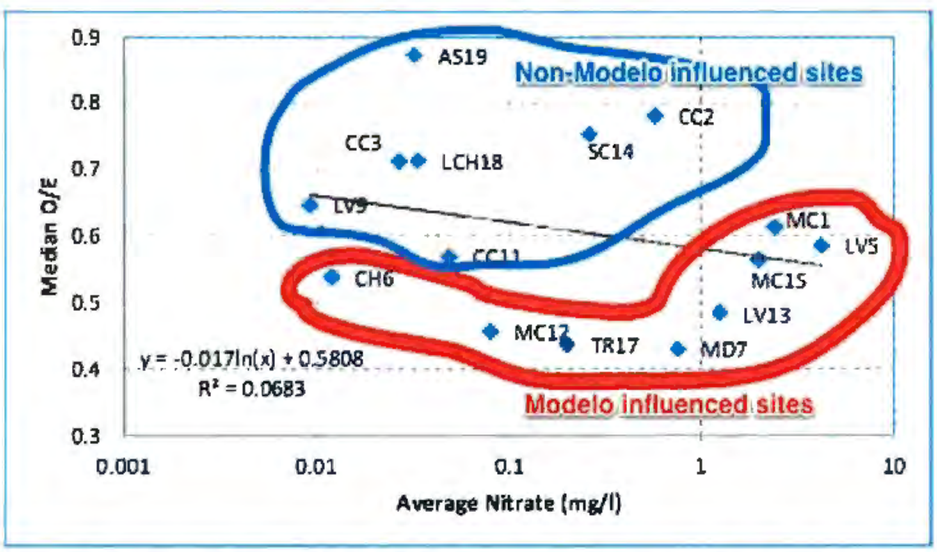


Figure 8-13. Correlation of Median O/E Scores with Average Nitrate-Nitrogen Concentration.
Note: Sites with at least 5 observations, 2000 – 2010. Median shown for MC-1 combines LVMWD R-4 samples; median shown for MC-15 combines LVMWD R-13 samples.

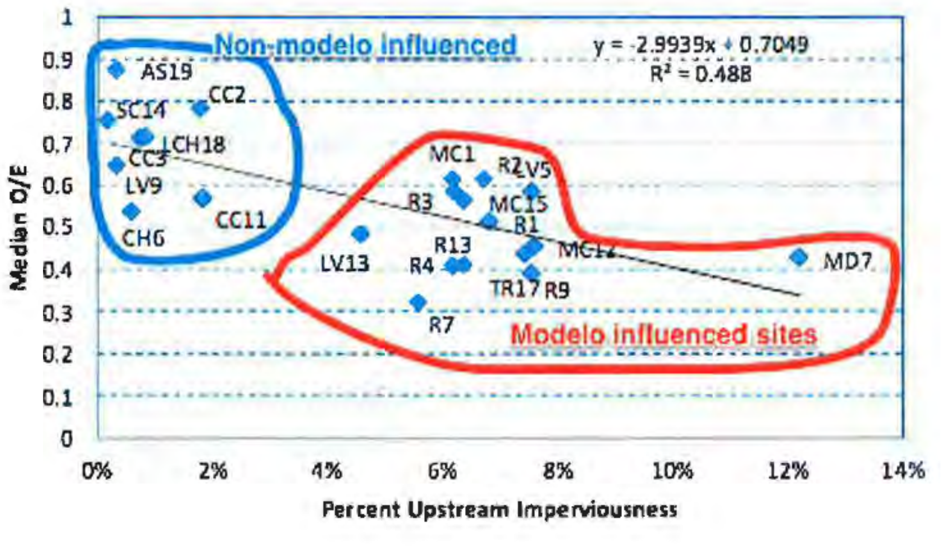


Figure 8-17. Correlation of Median O/E Scores with Percent Upstream Imperviousness.
Note: Sites with at least 5 observations, 2000 - 2010. Median shown for MC-1 combines LVMWD R-4 samples; median shown for MC-15 combines LVMWD R-13 samples.

2.2.2 The Stressor Analysis contains inconsistencies and fails to consider other influences that could be having more impact than nutrients

In addition to the absent linkage between benthic algal coverage and BMI metrics, we are concerned with the stressor analysis that was conducted to determine nutrients are causing or contributing to benthic impairments.

First, the stressor analysis is primarily based on the SC-IBI scores. As will be discussed later in these comments, the SC-IBI is not considered suitable for the evaluating impairment. The Draft TMDL does provide an assessment of impairments based on both the SC-IBI and the O/E. However, as acknowledged in the Draft TMDL, the findings based on these two methods conflict. The O/E results do not "complement" the IBI as stated in the Draft TMDL – they suggest a *different* interpretation, i.e., that Malibu Creek benthic communities are less impaired than suggested by the SC-IBI. Although the O/E results are still imperfect, they likely represent a better characterization of Malibu Creek watershed conditions than the SC-IBI. Therefore, the O/E scores should take precedence over the SC-IBI scores. No analysis is provided to allow assessment of whether the watershed would continue to be impaired if the O/E analysis was used to assess impairment or whether the stressor analysis would have generated different results if the O/E scores were used.

In addition, the Draft TMDL dismisses or fails to consider other potentially significant limiting factors. Related to the influence of the Modelo formation, the authors found that… "sulfate acute and chronic standards were exceeded in approximately half of both the wet and dry samples." The authors cite analyses of Brown and Bay (2005) suggesting that sulfate and other dissolved salts (naturally elevated in drainage from the Modelo formation) were the likely cause of observed dry and wet weather toxicity, but do not conclude this was a significant stressor on BMIs. Elsewhere, the authors link benthic impairment to upstream development and urban runoff, but do not consider the potential effects of pyrethroid pesticides in runoff from urban and residential area. These pesticides have been demonstrated to cause significant sediment toxicity in urban creeks (Weston 2010[3], 2005[4]) and although other urban source pesticides are considered and largely dismissed in the Draft TMDL, pyrethroid pesticides are not specifically considered at all.

Additionally, the Draft TMDL dismisses the impact of invasive species on the IBI scores because the impacts do not have a temporal relationship (i.e. the lower IBI scores were present prior to the observation of invasive species). However, invasive species are known to have significant impacts on the biological communities in a waterbody. As discussed in the SWRCB's workshop on biological objectives on January 23, 2013, reference sites known to have invasive species have been excluded from inclusion in the reference network as these species can confound evaluation of the biological results. Although invasive species may not have been present at all times when low IBI scores were observed, the current presence of invasive species could be contributing to the current biological community health and could be masking any improvements that have resulted from implementation of the 2003 Nutrient TMDL.

Finally, on page 2-7, the Draft TMDL states that the source of impairment in the Malibu Lagoon is hydromodification. If hydromodification is the basis for the impairment in the Lagoon, the impairment should be addressed by assigning the listing to Category 4c on the 303(d) list, and a TMDL should not be developed. The stressor analysis identifies hydromodification as a source of impairment, and the linkage between hydromodification and BMI impairment is stronger than the linkage between BMI impairment and algae or nutrients.

The stressor analysis also includes a number of inconsistencies and confusing statements that bring into question the conclusions of the analysis. On page 9.1.2, the analysis states that "for a causal pathway to be considered complete, a source must be present and linked to a stressor, which must then be linked with the resulting impairment." We feel that a number of the analyses presented do not provide this complete pathway or present conflicting statements. As a result, we feel Section 9 should be revisited to clarify and correct the inconsistencies and include further analysis of stressors as identified above. Some examples of these conflicting statements are summarized below.

- Page 9-10-"However the biological gradient evidence is weak, because the physical habitat scores are generally acceptable and do not appear to correlate with the SC-IBI scores. Evidence from the literature supports sedimentation as a plausible, but not specific stressor resulting in benthic macroinvertebrate community impairment. Other stressors elicit similar responses. No evidence is available to support predictive performance. Over the consistency of evidence for sedimentation causing biological impairment to Malibu Creek is most consistent." How do weak evidence relating to IBI scores, general literature information with no watershed specific evidence, and no evidence for predictive performance lead to sedimentation being a likely stressor? It appears the only basis for this conclusion is excess sedimentation being observed by Heal the Bay's Stream Walk

---

[3] Weston, D.P., and M.J. Lydy, 2010. Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California. *Environmental Science and Technology* 44:1833–1840.

[4] Weston, D.P., R.W. Holmes, J. You, and M.J. Lydy. 2005. Aquatic toxicity due to residential use of pyrethroid insecticides. *Environmental Science and Technology* 39:9778-9784

observations that occur spatially with the impairment. However, this data is not provided for review and the methods for making the observations are not discussed.

- On page 9-17, most of the discussion regarding toxicity concludes that there is no linkage or weak linkages to toxicity being a stressor. However, the concluding sentence of the paragraph states that "Most of the evidence is consistent with toxicity as a causal factor of benthic macroinvertebrate impairment, and any inconsistencies can be explained by a credible mechanism." Then, later in the Draft TMDL, toxicity is eliminated from the possible causes. Also, the discussion in this section just focuses on selenium and sulfate when other possible sources of toxicity are discussed in other portions of the document. If other possible sources of toxicity were evaluated here, would the linkages change (i.e. the conclusion that the biological gradient is weak because reference sites also have high conductivity?). In general, the discussion of toxicity seems to be inconsistent throughout the document and therefore the conclusions of the stressor analysis regarding toxicity are unclear.

- On page 9-20, the Draft TMDL states "the strength of evidence supporting the causal pathway between increased sedimentation and reduced habitat quality leading to biological impairment is strong." This seems to contradict the statement on page 9-10 quoted above and the technical analysis in the Draft TMDL that the "biological gradient evidence is weak" for sediment. This statement is repeated again on page 9-21 and 9-22 under B2. Channel Alteration for Malibu Creek and Malibu Lagoon respectively and on page 9-26.

- On page 9-27, the third paragraph discusses the relationship between toxicity and urban runoff. The concluding sentence does not seem consistent with the information provided in the paragraph. The paragraph states that evidence is "incompatible", "inconsistent", and "weak" and the exposure pathway is incomplete. Yet the concluding sentence states that "The evidence supporting the relationship between urban runoff and increased toxicity is consistent". The concluding sentence should be modified to state there is not a relationship based on the evidence if the previous statements in the paragraph are correct.

- The Table on page 9-3 summarizing the results of the analysis does not seem to reflect the text or the results. For example, the same score (+) is given to all of the considerations for A1. Reduced Habitat from Sedimentation. However, the information provided for each consideration is different, with some indicating insufficient or incomplete information while others indicate clear relationships. As a result, they should not be all given the same score. The same situation occurs within the evaluation of A3. Reduced DO from Excess Algal Growth or Oxygen-Demanding Wastes. Additionally, how is a score of +++ given to Consistency of Evidence for B1. Altered Hydrology when none of the scores above are higher than + other than the literature analysis? Finally, the summary in this table does not seem to match the conclusions of the stressor analysis that were used as the basis for the Draft TMDL. For example, the Table lists toxicity as the only stressor with "actual evidence" of impacts to benthic communities.

Finally, we have concerns about the methodology utilized to conduct the stressor analysis. It is our understanding that EPA utilized existing causal assessment tools, specifically the Causal Analysis/Diagnosis Decision Information System (CADDIS). It is important to acknowledge that the same Technical Team assembled by the SWRCB to develop the scoring tools for the Biological Objectives also conducted a pilot study to evaluate the efficacy of using the CADDIS causal assessment tool to identify causes of suspected BMI impairments in California. Their overarching conclusion was that for streams exposed to chronic and systemic stressors, CADDIS was only marginally useful in being able to rule out potential causes, and was wholly inadequate in identifying the causes of BMI impairments.[5] As a result, the Draft TMDL's reliance on this approach to determine that lower concentrations of nutrients are required is premature.

2.2.3 The Draft TMDL relies on potentially unmeaningful percent cover data to support its designation of nutrients as a stressor for benthic invertebrates.

Percent cover data, as currently generated in California, is not a meaningful metric for evaluating the extent or nature of benthic algal colonies, and by extension, effects on benthic invertebrates. By relying on percent cover data from Heal the Bay (and by reference, to information in a report prepared for Heal the Bay by Luce and Abramson (2005),and in Busse et al. 2003), the Draft TMDL fails to provide evidence that benthic algae occurs at levels in the Malibu Creek Watershed that would influence benthic invertebrate community composition.

There is no official or standardized method for generating scores for percent cover of benthic algae for stream sites in California. The California Surface Water Ambient Monitoring Program (SWAMP) SOP for collecting stream algae samples[6], provides a scheme for characterizing the presence and thickness of microalgae (e.g., diatom films) at positions along sampling transects, and presence (but not thickness) of macroalgae (e.g., filamentous forms like *Cladophora*), but provides no recipe for converting the scores obtained during point/intercept transects into aggregate site percent cover values that are quantitatively or ecologically meaningful.

Specifically, the SWAMP SOP (and associated official field form[7]) merely requires the field crew to indicate presence or absence of *macro*algae (e.g., filamentous algae) at several points in the stream, and to assign one of several codes related to *micro*algae (e.g., diatoms) as shown in Figure 2 and Figure 3. Procedures for assigning an overall percent cover score for benthic algae for the sampling reach are left entirely to the discretion of the investigator. There is no SWAMP protocol for converting the information from the field form into a site-based metric for percent cover of any kind, much less one that is ecologically meaningful.

In practice, it is not uncommon for investigators using the SWAMP SOP to generate a percent cover score for a whole sampling reach by counting transect positions that received any one of

[5] Science Advisory Group Meeting. October 17, 2013. Technical Team Causal Assessment Update Presentation. http://www.waterboards.ca.gov/plans_policies/docs/biological_objective/101712_meeting/four_caddis_overview.pdf

[6] Fetscher, A.E., L. Busse, P.R. Ode. 2010. Standard Operating Procedures for Collecting Stream Algae Samples and Associated Physical Habitat and Chemical Data for Ambient Bioassessments in California. SWAMP Surface Water Ambient Monitoring Program Bioassessment Procedures 2010.

[7] Available at http://swamp.mpsl.mlml.calstate.edu/resources-and-downloads/database-management-systems/swamp-25-database/templates-25/field-data-sheets#BAFieldData, accessed January 17, 2013.

the SWAMP codes 1-5 for microalgae, and/or a code of "P" (for "present") for macroalgae, and then dividing the resulting number of benthic algae "hits" by the total number of positions evaluated in the sampling reach. In other words, substrates colonized by inches-thick layers of diatoms would contribute equally to a percent cover score as substrates that feel "slimy", but have no visible algae. In addition, positions occupied by a foot-thick mattress of filamentous algae would contribute equally to a percent cover score as positions where a single strand of filamentous algae drifts back and forth in the current below the measuring tape.

Using this common approach, a reach could technically receive a 100% cover score for microalgae if the rocks or other substrates encountered at transect positions all "felt slimy", but had no visible algae! Clearly, this is an inadequate measure of the potential for beneficial use impairment, as stream surfaces are naturally colonized with micro- and macroalgae to some extent in even the most pristine conditions.

The same issues apply to the determination of percent floating algae; any thickness of floating algae encountered at a transect point is commonly assigned an equivalent and indiscriminant "present" score. Consequently, a 100% cover score for floating algae for a site could indicate that the sampling reach was uniformly covered by a stationary, thick, suspended mat of filamentous algae, or that thin wisps of algae happened to drift over the measurement point while the investigator was looking down at the substrate.

None of the customary procedures for deriving site values for percent cover (regardless of whether the data were obtained using the SWAMP field data form, or EPA or State draft protocols that preceded the SWAMP SOP) would produce percent cover values that are consistent with the type of coverage targets in the 2003 Nutrient TMDL, which dictated that percent cover of floating algae be determined on the basis of algal filaments > 2 cm *in length*, and that bottom algal coverage be determined on the basis of "diatoms and blue-green algae mats" > 0.3 cm in thickness, expressed as seasonal means. Note that the second criterion most closely resembles the "3" category in the SWAMP scheme, and yet it is common practice to include transect scores as low as "1" when computing percent cover.

Table 4
Microalgal thickness codes and descriptions (adapted from Stevenson and Rollins 2006).

Code	Thickness	Diagnostics
0	No microalgae present	The surface of the substrate feels rough, not slimy.
1	Present, but not visible	The surface of the substrate feels slimy, but the microalgal layer is too thin to be visible.
2	<1mm	Rubbing fingers on the substrate surface produces a brownish tint on them, and scraping the substrate leaves a visible trail, but the microalgal layer is too thin to measure.
3	1-5mm	
4	5-20mm	
5	>20mm	
UD	Cannot determine if a microalgal layer is present	
D	Dry point	

Figure 2. The Scheme for Scoring Microalgae in the SWAMP Algae Protocol.

Transect Substrates										
Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes	**Microalgae Thickness Codes** 0 = No microalgae present Feels rough, not slimy; 1 = Present but not visible, Feels slimy; 2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail. 3 = 1-5mm; 4 = 5-20mm; 5 = >20mm; UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code). D = Dry, not assessed
Left Bank					P A		P A D	P A D	P A D	
Left Center					P A		P A D	P A D	P A D	
Center					P A		P A D	P A D	P A D	
Right Center					P A		P A D	P A D	P A D	
Right Bank					P A		P A D	P A D	P A D	
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)									

Figure 3. Portion of SWAMP stream habitat characterization form (dated Jan. 9, 2012) for recording point-intercept scores for presence/thickness of microalgae and presence (but not thickness) of macroalgae. Form contains no standardized procedure for converting data to an overall percent cover score

The only percent cover data the Draft TMDL presents is from Heal the Bay, from a total of three sites from the Malibu Creek watershed, as follows:

Table 8-13: 5-year averages for percent cover for floating and mat algae for 2 sites (Sites 1, 12)

Figure 8-18: Time series of floating algae percents for Sites 1 and 12

Figure 8-19: Time series of algal mat coverage for Sites 1 and 12

Figure 8-20: Box plots for 5 sites (time frame not revealed); 3 sites in the Malibu Creek watershed (Sites 1, 12, and 15) and 2 sites outside of the Malibu Creek watershed (Sites 14 and 18)

Figure 8-21: Scatter plots with inorganic N or inorganic P on the x-axis and mat algal coverage on y-axis (with no indication of the sites or years included)

No source is cited for the data (report, website, methodology) that would allow a critique of the methodology used to generate the data (was it visual estimation or point-intercept? were all thicknesses or lengths treated equally? did the procedures produce percent cover data that match the definition in the 2003 Nutrient TMDL? are the data meaningfully interpreted as a proxy for benthic invertebrate impairment?). We have reason to believe that the Heal the Bay data were obtained using visual estimates. If true, the data are subjective, not truly quantitative, not suitable for comparing to TMDL targets, and should not be used as evidence for impairment of benthic invertebrate habitat.

In the section of the Draft TMDL where percent cover data from Heal the Bay is presented, the Draft TMDL also discusses a report prepared by Luce & Abramson (2005), who apparently performed statistical analysis of percent cover data from Heal the Bay sites, and related it to nutrient concentrations. However, the methods description in this report indicates that the field work was not conducted using SWAMP-comparable procedures, that the percent cover values were assigned irrespective of the magnitude (i.e., thickness or length) or taxonomic nature (macro- or micro-algae) of benthic algae, and that the data are not compatible with the targets as specified in the 2003 Nutrient TMDL:

> *"Algal Cover Survey*
> *We conducted monthly line-intercept surveys for periphyton cover at each site at the time of water chemistry sampling. In these surveys, we did not distinguish between macroalgal periphyton and the diatom layer (diatoms). We stretched a tape measure across the wetted width of the stream along two separate transects that represented periphyton conditions at the site. For each transect we recorded the length that had macroalgal or diatom cover and calculated a percent cover, then averaged the two measurements."* (Luce & Abramson 2005, p. 6)

and later, for semi-annual surveys:

> *"We recorded presence of macroalgal and diatom cover separately at each point across the transect, and calculated the proportion of points that had cover, to obtain the percent cover of each type of algae...We measured areal cover of macroalgae and diatoms rather than biomass, so we did not distinguish between thin and thick covers of periphyton."* (p. 7-8)

Finally, we understand from conversations with USEPA staff that percent cover data in Busse et al. (2003) was influential in the conclusion that percent cover targets are not being attained in the watershed since the 2003 TMDL was adopted. This would not be a logical approach, because the data were collected prior to the adoption of the 2003 TMDL, and do not bear upon arguments related to the suitability of the nutrient targets in the 2003 TMDL. In addition, the percent cover data tabulated in Busse et al. (2003) (which is not presented in the Draft TMDL or discussed in detail) is also not consistent with the targets defined in the 2003 Nutrient TMDL, is categorized using single genera of algae, and is not stratified into thickness or length categories.

2.2.4 The Draft TMDL fails to determine that nutrients are related to percent cover of algae

The Draft TMDL fails to make the case that TN and TP are related to percent cover of algae in the Malibu Creek Watershed. The Draft TMDL appears to "pick and choose" pieces of information about percent cover and nutrients to make the case that there is a direct relationship, in almost an anecdotal fashion. For example, in one place the Draft TMDL will describe spatial patterns in nutrients, generally speaking (e.g., in the "trends" narratives in Section 7), and in other places describe spatial patterns in percent cover, generally speaking (e.g., in Section 8), and then conclude elsewhere in the document (e.g., in the Linkage Analysis) that the disparate data sets provide evidence for a predictive relationship between nutrients and algal coverage. The only statement describing paired nutrient data (of any kind) and algal coverage data *for any particular site* is qualitative, and concerns the wrong nitrogen parameter (nitrate-N):

"Indeed, MC-12 concentrations [of nitrate-N] have not been noted in excess of the 1 mg/L target, yet mat algal coverage remains high." (Draft TMDL, p. 7-17).

The circuitous arguments in the Draft TMDL are directly contradicted by the only analysis of paired nutrient and percent cover data in the Draft TMDL. In Figure 8-21, scatterplots are presented relating inorganic N or P, and percent cover of mat algae. The scatterplots (and correlation coefficients) show no significant relationships. The ability to generate a line with any slope at all in the N vs. algae plot is likely driven by a single point anchoring the regression line in the upper right quadrant of the plot. The Draft TMDL does not provide the statistical parameters needed to indicate whether the slopes of the regressions were significantly different than zero, but inspection of the figures indicates that if even an extremely weak relationship exists, is not ecologically meaningful. The Draft TMDL acknowledges the lack of the relationship as follows, but chooses to speculate that maybe things would be different if data for TN or TP were available:

> *"An examination of all the Heal the Bay mat algae coverage data shows that there is almost no correlation between algae coverage and either inorganic N or inorganic P concentrations (Figure 8-21). Notably, 100 percent cover can occur at the lowest inorganic nutrient concentrations, while low cover is often found at high inorganic nutrient concentrations. In part, this may reflect control by light limitations and other factors; however, it also suggests that inorganic nutrient measurements may not provide a good indication of algal growth potential; instead total nutrient concentrations may be better at providing an indication of primary production*" (Draft TMDL, p. 8-36)

Speculation regarding the ability of TN or TP to predict algal biomass cover is a poor basis for establishing specific numeric targets for TN and TP to address benthic invertebrate index scores. The Draft TMDL makes other acknowledgements of a weak link between nutrients and algal percent cover in the Malibu Creek Watershed:

> *"SCCWRP (Busse et al., 2003) performed a detailed examination of algal conditions in 2001 and 2002, including measurements of benthic chlorophyll a densities, and concluded that most developed sites in the Malibu Creek watershed had chlorophyll a concentrations that "exceed suggested thresholds for acceptable levels.' At most sites, algal biomass was not limited by nutrients, but rather by light availability and water current."* (Draft TMDL, p. 8-33)

2.2.5 Benthic Algal Biomass in the Malibu Creek Watershed does not Appear to be Related to Nutrient Concentrations

Using data from Appendix F, observed concentrations of benthic algae are plotted by the corresponding water column Total Nitrogen (TN) concentrations in Figure 4. The 150 mg/m^2 benthic algae target is called out on the figure. Five of the observations are below the algae target, and these five sites correspond to water column TN concentrations spanning the entire range in the dataset (from 0.7 to 3.8 mg/L). The corresponding plot for Total Phosphorous (TP) is presented as Figure 5; sites with benthic algae less than 150 mg/m2 have water column TP ranging from less than 0.1 mg/L to greater than 0.3 mg/L. Based on the paired data for TN and benthic algal biomass collected in the Malibu Creek Watershed, there does not appear to be a relationship between benthic algal chlorophyll-*a* concentrations and water column total nutrient concentrations.

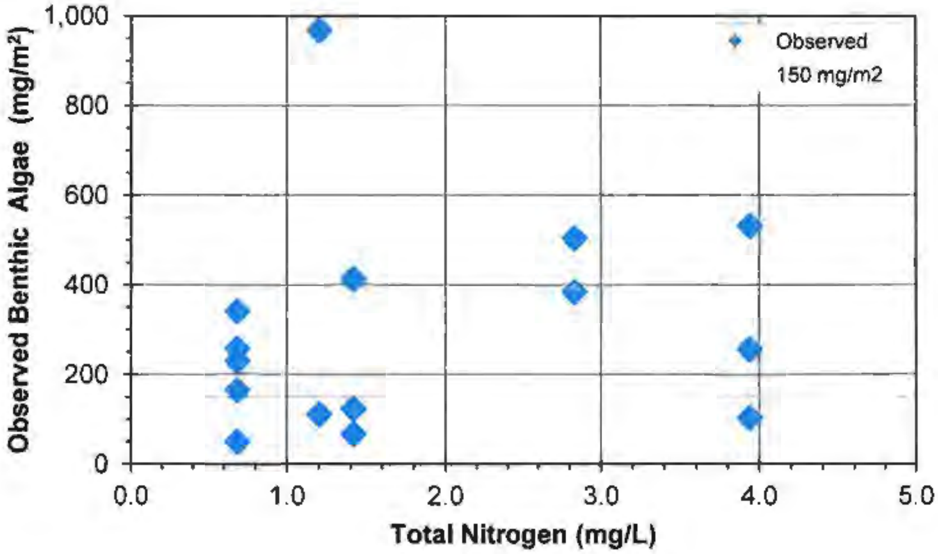


Figure 4. Measured Benthic Algae Concentration plotted at Corresponding Total Nitrogen Concentration.

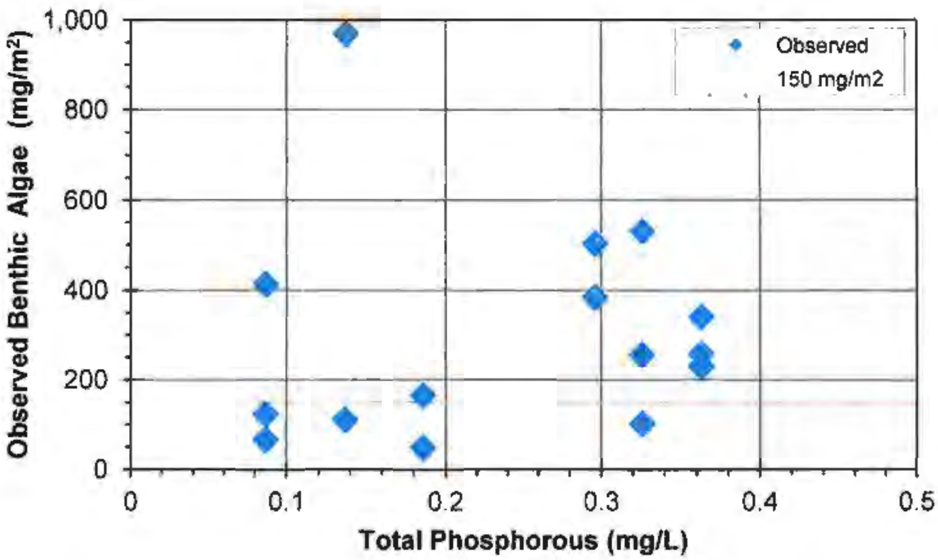


Figure 5. Measured Benthic Algae Concentration plotted at Corresponding Total Phosphorous Concentration.

Nutrients also fail to correlate to algal biomass in the watershed when algal biomass is evaluated using AFDW. Using information in Appendix F, one observes that where there is a high degree of canopy cover, the ratio of chlorophyll-a to ash free dry weight (AFDW) is higher. The pertinent data from Appendix F are plotted in Figure 6. The relationship makes sense because when there is less available light, algae produce more chlorophyll per unit mass of algae. AFDW is a more appropriate metric for algal biomass targets, because it is a measurement of the mass of algae, whereas the chlorophyll-a is a measure of the chemical used by the algae to convert light into energy. Where there is a high degree of canopy cover, the chlorophyll-a measurement may be high, but the physical amount of algae (measured as AFDW) may be acceptable.

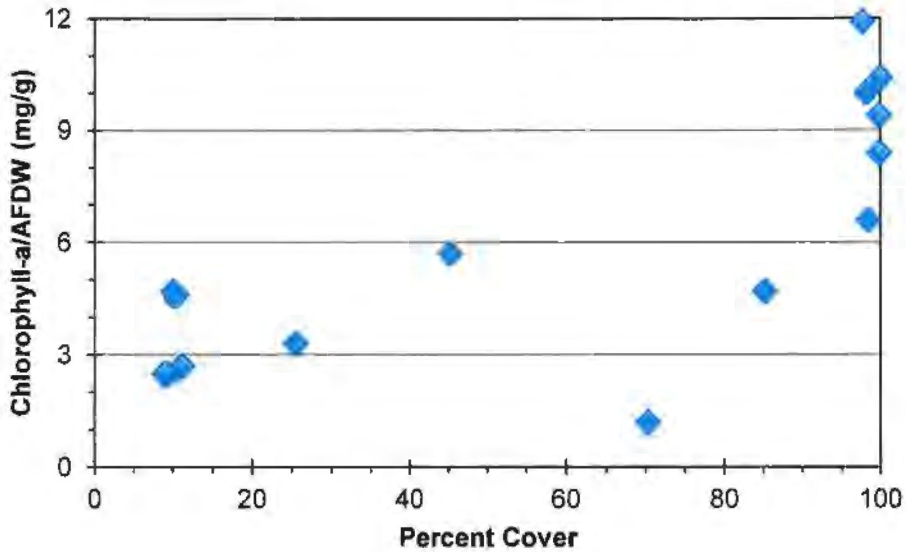


Figure 6. Ratio of Measured Chlorophyll-a to Ash Free Dry Weigh at the corresponding Percent Canopy Cover.

In Figure 7, algal biomass, as AFDW, is plotted by the corresponding water column TN concentrations for Malibu Creek Watershed using data from Appendix F. Over the entire range of measured TN, there are values for AFDW below the 60 g/m^2 target. In other words, there is no obvious relationship between water column TN and the amount of algae present.

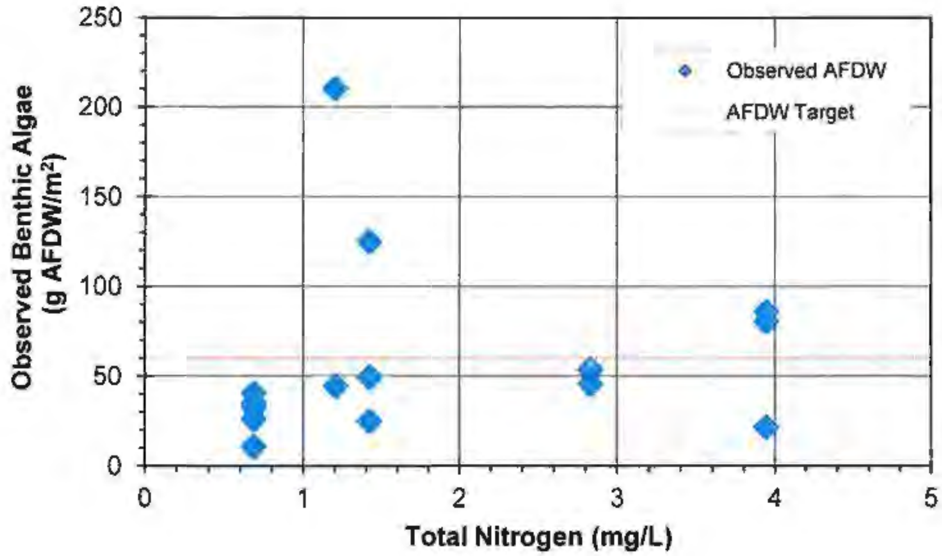


Figure 7. Benthic Algae Concentration as AFDW plotted at the Corresponding Water Column Total Nitrogen Concentration. The red line indicates the value for AFDW that corresponds to the proposed algal biomass target of 150 mg chl.-a/m2, assuming a ratio of AFDW/chl.a = 2.5.

2.3 The Analysis to Justify the Use of the NNE Tools as a Basis for Lowering the Nutrient Targets is Flawed Comment 6-10

For the Draft TMDL, it is stated that a nutrient numeric endpoint (NNE) technical document is being prepared for the Malibu Creek Watershed. The draft NNE document is listed as a reason it is necessary to set nutrient allocations lower than the 2003 Nutrient TMDL currently in effect. On page 2-3, the Draft TMDL states that a Draft NNE document specific for Malibu Creek Watershed is being developed that provides strong evidence that the nutrient limits from the 2003 TMDL should be revisited. This draft work product is also referred to on page 1-3 as follows: *"Based on this draft NNE document specific for Malibu Creek Watershed an other additional monitoring in Malibu Creek and Lagoon, there is strong evidence that the nutrient limits should be revisited."* However, the Draft NNE document is not available for review, not included in the information provided for evaluation of the Draft TMDL, and should not be used as justification for revising the 2003 numbers.

Regardless of whether a Draft NNE document is under development, the use of the NNE modeling tools as justification for requiring lower nutrient allocations is premature given that the State's Nutrient Policy is not yet developed. Additionally, we have concerns about inherent biases and other technical issues with the NNE spreadsheet tool that were used to conduct the analysis, as outlined below.

The NNE Benthic Biomass Predictor spreadsheet tool (BBT) was developed largely from the data compiled by Dodds (1997, 2002, corrected in 2006). The regressions developed by Dodds are used to calibrate the "Standard", "Revised", and "Revised with Accrual "models within the BBT. Thus the variability present in the Dodds datasets is built into all of the BBT submodels. Based on the 95% confidence interval surrounding the regression lines predicting chlorophyll-a from nutrient concentrations derived by Dodds, the 95% confidence interval associated with a chlorophyll-a "target" of 150 mg/m^2 is approximately 40 to 2,100 mg chl.-a/m^2. The observed algal biomass in the Malibu Creek Watershed ranges between 50 and 1,000 mg chl.-a/m^2. The inherent accuracy of the underlying nutrient/algal relationships incorporated into the BBT is not sufficient to determine if there are algal or nutrient impairments in the watershed (or really any watersheds). In fact, based on the poor precision of the BBT, and because the measured algal biomass in the Malibu Creek Watershed is within the BBT's 95% confidence interval for the 150 mg/m^2 prediction, the conclusion could be that the watershed is not impaired for algae.

The BBT also produces biased nutrient predictions owing to its treatment of incident solar radiation. When considering the available solar insolation, the original QUAL2K model (not the borrowed equation sets incorporated into the BBT) recognizes that not all light from the sun is available for photosynthesis. In the original QUAL2K documentation it is stated that 47% of the solar insolation is photosynthetically available radiation (PAR). The original QUAL2K model converts solar insolation to PAR when calculating algal growth. The BBT does not convert solar insolation to PAR, and are therefore flawed because they use too much light and therefore predict too much algae. The steady state equations in the BBT use the average light intensity to calculate growth, which corresponds to a condition of continuous (24-hr) light available for growth. In reality, during the night there is no light available for growth, which if accounted for in the model, would result in lower algal biomass predictions. The net result is that the BBT over estimates algal biomass, due to the flawed implementation of available light.

Another source of bias in the BBT is its treatment of temperature. The original QUAL2K model documentation notes that all temperature dependent reaction rates are modified by the Arrhenius relationship. However, even though the BBT documentation notes that respiration and death rates are temperature dependent, respiration and death rates are not adjusted for temperature in the BBT spreadsheet. The net effect is that when the water temperature is greater than 20°C, the BBT over estimates algal biomass. At 30°C, the algal biomass predicted by the BBT is double what it would be if the temperature was correctly implemented. Because of the error in BBT implementation, the predicted levels of algae are incorrect, when the temperature is not 20°C, and is the reason, for example, why the BBT models calculate a relatively low algae concentration for the Las Virgenes, Multiple 2, sun run site when the water column nutrient concentrations are high.

In addition, the models within the BBT were developed using seasonal average nutrient water column concentrations to calculate the seasonal average or seasonal maximum benthic algal concentration. Instantaneous water column nutrient concentrations, instead of seasonal average concentrations, are used in the Malibu NNE analysis to predict season maximum algal biomass, instead of seasonal average concentrations. The BBT is not being used correctly for the Malibu Creek Watershed in the NNE tool analysis.

Finally, the results of the NNE analysis in Appendix F do not accurately reflect the observed conditions in the watershed. Modeled algal biomass from Appendix F is compared to the observed algal biomass in Figure 8. In the modeling presented in Appendix F, is it stated that the ratio of chlorophyll-a to AFDW was taken into account for each individual site. In the figure, a perfect match between model and observation would result in all points plotting on the horizontal line at 1.0. At high benthic algae concentrations, the model appears to be within 50% of the measured concentrations, at lower benthic algae concentrations, the model appears to be heavily biased high. For the observations under the 150 mg/m^2 chlorophyll-a target, the BBT over-predicts the algal biomass by up to 320%. Using the BBT may indicate more impairment than is actually present in the watershed.

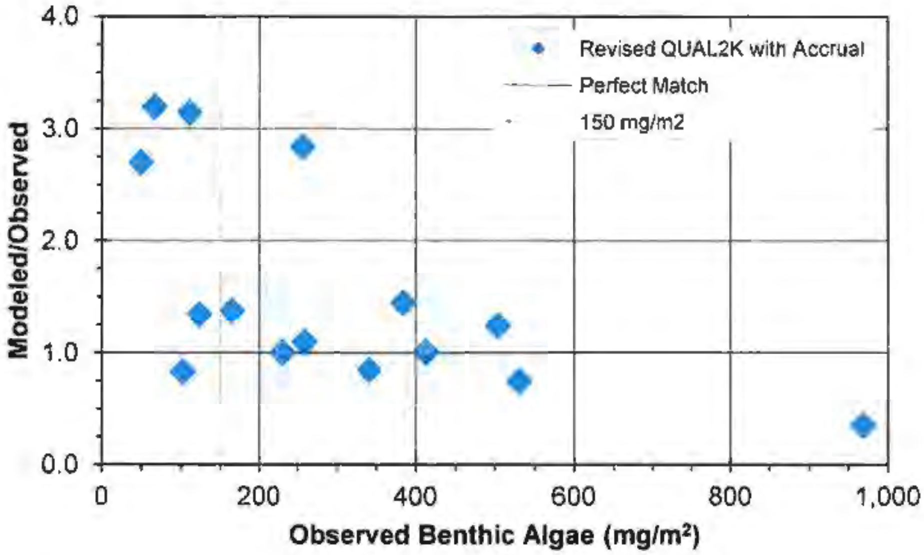


Figure 8. Ratio of Modeled Predicted to Observed Benthic Algae Concentrations Plotted to the Corresponding Observed Concentrations.

2.4 Reference Condition Calculations are Unclear and Do Not Account for Natural Watershed Conditions

Comment 6-11

The Draft TMDL lacks transparency regarding how the specific TN allocations were derived. On page 7-24, the Draft TMDL states:

"In sum, evidence to date indicate that natural reference conditions for the Malibu Creek watershed have a central tendency for the summer period of between 0.52 - 0.67 mg/L total N" (Draft TMDL, p. 7-24)

No actual explanation for how this range was derived is provided in the Draft TMDL. Inspection of Table 7-11 that accompanies this text in the Draft TMDL suggest that this range was created by pairing the Level 3 Ecoregion recommendation of 0.518 (which would round up to 0.52) and the value listed for Cold Creek (0.67). Later, on page 10-8, the Draft TMDL claims that data from nine reference sites were used to derive the TN target for the Draft TMDL, but the sites and associated data are not revealed, nor is the calculation explained. Finally, no explanation is provided for how any of this information was used to compute summer and winter TN allocations of 0.6 and 1.0, respectively. Consequently, stakeholders are unable to evaluate the appropriateness of the reference site data that was relied upon, or the calculations that were used.

Additionally, information provided in Table 7-11 shows much higher concentrations, above those currently in the 2003 Nutrient TMDL, for sites draining the Modelo Formation. Although the identified site may have some issues that make it inappropriate for consideration as a reference site, the fact that reference conditions within the Modelo formation were not considered as part of the analysis for the watershed is inappropriate. It is our understanding that other data are available that could have been evaluated to determine reference conditions. In particular, other National Park Service (NPS) water quality data were available to the EPA, but were not included in Draft TMDL analyses (see LVMWD 2011)[8]. The NPS data would have been particularly informative because of the many sites are in undeveloped headwaters.

2.5 Basis for adding wet season requirements is not justified and the allocations should remain seasonal with significantly higher numbers in the winter season

Comment 6-12

In general, the Draft TMDL does not provide sufficient justification for including winter season or wet weather allocations within the Draft TMDL. The only statements we could find to justify winter allocations were in the Critical Conditions section on page 10-13 and a few references to the need for year round dry weather and wet weather targets in Section 9. Section 10 states that Malibu Lagoon is most sensitive to nutrient loads delivered during winter storms and stored within the estuary and that year round nutrient concentrations during dry weather are needed to protect the Creek. We have concerns with these statements as the Draft TMDL does not provide any evidence to justify them.

- The Draft TMDL does not lay out its evidence for wintertime exceedances of algal percent cover, or for a circumstantial relationship between algal percent cover and wintertime TN or TP concentrations. Algal percent cover data is not evaluated on a seasonal basis in the Draft TMDL, nor is there any direct comparison of TN or TP concentrations and wintertime percent cover for specific locations. As discussed previously, we were able to obtain a copy of an excel file from USEPA containing the algal percent cover data that was considered in the Draft TMDL. Precipitation data from the watershed was obtained to determine if data were collected during wet weather exceeded the 2003 Nutrient TMDL algal percent cover targets. Only two out of nine observations since 2006 have exceeded 60% during a wet event or within three days of a rain event. During the wet season, some observations were seen above the 2003 Nutrient TMDL algal percent cover targets throughout the watershed, but not in the tributaries downstream of the Ventura County MS4s.

- The Draft TMDL does not explain how in-stream concentrations of nutrients during storm runoff events impairs habitat for benthic invertebrates in the streams. In fact, on p. 8-33, winter scour is cited as reducing periphytic algae based on 20 years of data in Byron & DuPuis (2002).

- The Draft TMDL does not explain how nutrients in storm runoff that are captured by upstream lakes and reservoirs contribute to a benthic invertebrate impairment in the lagoon. As discussed previously, the dams are likely to limit the discharges from Ventura County MS4s that will reach the lagoon.

[8] Las Virgenes Metropolitan Water District (LVMWD). 2011. Water Quality in the Malibu Creek Watershed, 1971-2010. LVMWD Report #2475.00.

- By requiring that all stream reaches attain reference concentrations during wet and dry weather between Nov-Apr, the Draft TMDL does not recognize that part of the wintertime load of nutrients reaching the main stem Malibu Creek (even nutrients derived from open space) is exported to the ocean. The Draft TMDL states that:

  "Natural breaching of the Lagoon barrier would occur primarily in response to winter storms. Alterations to the hydrology of the system have affected this natural cycle. Extensive use of imported water in the basin has extended flows into the dry season, which, in conjunction with reduced storage in the Lagoon, tends to result in overtopping of the beach during the summer. To prevent flooding, mechanical breaching of the beach during summer has been used." (Draft TMDL, p. 6-10)

  "However, increased flows during the natural dry season have overtopped the beach barrier and opened the Lagoon to ocean waters. While these increased flows may help scour out accumulated sediments, the timing of the events may conflict with lagoon benthic macroinvertebrate phenology." (Draft TMDL 9-21)

  If beach overtopping is occurring during the summer, it seems reasonable to expect that water is exported from the lagoon to the ocean during wet weather. Requiring reference condition concentrations to protect the lagoon from winter loadings that do not all remain in the lagoon is inappropriate.

- The Draft TMDL does not make the case that replicating nutrient concentrations (or other conditions) from reference reaches will attain desired levels of algal percent cover. The Draft TMDL concludes that percent cover is much lower at reference sites than in the Malibu Creek main stem. However, the only data to support this conclusion in the Draft TMDL (in Figure 8-20) is for two sites that are outside of the watershed, and the data are not stratified by season. Monitoring at sites within the watershed has not occurred since 2003 according to the excel file provided by USEPA.

- The Draft TMDL does not explain what has changed since USEPA previously disputed the need for low wintertime targets in the watershed. In response to comments on the 2003 Nutrient TMDL, EPA stated:

  > *"We do not think it is appropriate at this time to impose summer time targets to the winter time because there are uncertainties associated with the 1) extent of impairment in the winter 2) the relationship between nutrient concentrations and algae in the winter and 3) the relationship between winter nutrient loads and sediment. EPA has opted to apply the existing concentration-based standard to the wintertime conditions along with a margin of safety which will result in a substantial reduction in the annual nitrogen loadings to the system. We believe that this approach is appropriate given the uncertainties noted above."*

  None of these uncertainties have been addressed by this Draft TMDL sufficiently to justify adding winter targets at this time. As shown above, several of the uncertainties, such as the relationship between algae and nutrient concentrations, remain.

In essence, the selection of new wintertime targets in the Draft TMDL appears to be driven by a desire to impose newly available reference reach concentrations (not necessarily even from the Malibu watershed) as watershed-wide WQOs (albeit with a little "wiggle room") merely because new data are available, but not because there is compelling evidence that new, lower wintertime targets for dissolved or particulate nutrients are necessary to protect beneficial uses for benthic invertebrates in the main stem of Malibu Creek.

- The NNE Benthic Biomass Predictor Tool (BBT) is not suitable to evaluate the role of wet-weather nutrient loads on algal biomass. The BBT uses seasonal average input to calculate seasonal average benthic algal density and season maximum benthic algal density, and was built and calibrated using seasonal data from other systems. The BBT has no mechanism to model wet-weather events. As a result, the NNE analysis performed for Malibu Creek Watershed cannot be used as justification for the need for wet weather allocations.

- Other California Nutrient TMDLs for streams (with estuaries) that were recently developed following the NNE approach recognize the weak link between wet weather nutrient loads and algal-related impairment. These TMDLs assign sensible wet weather allocations to MS4 Permittees and non-point sources that are substantially higher than summer – or dry weather - allocations, and establish the wet weather allocations as limits for nitrate-N, not TN. The Salinas River nutrient TMDL[9] assigns a numeric target of 8.0 mg/L nitrate-N (expressed as a maximum of wet season samples) to all reaches during Nov.1-Apr. 30. The recently adopted Ventura River Algae TMDL[10] assigns year-round wet weather allocations for MS4 permittees, agriculture, and livestock sources of 5-10 mg/L nitrate-N, depending on the reach.

2.6 The proposed nutrient targets and allocations are unachievable with available technology

Comment 6-13

The Draft TMDL proposes numeric targets for total nitrogen of 0.6 mg/L during the summer and 1.0 mg/L during the winter and total phosphorous of 0.1 mg/L year round. As discussed in Attachment C, although structural and non-structural best management practices for treatment of MS4 discharges are capable of reducing TN and TP discharges, they cannot reliably result in consistent reductions that will achieve the proposed targets and allocations under all conditions

[9] California Regional Water Quality Control Board, Central Coast Region, Resolution NO. R3-2013-0008 Amending the Water Quality Control Plan for the Central Coast Basin to Adopt Total Maximum Daily Loads for Nitrogen Compounds and Orthophosphate in the Lower Salinas River and Reclamation Canal Basin and the Moro Cojo Slough Subwatershed.

[10] California Regional Water Quality Control Board, Los Angeles Region, Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the Total Maximum Daily Load for Algae, Eutrophic Conditions, and Nutrients In the Ventura River and its Tributaries, Adopted by on December 6, 2012.

year round. In particular, achieving treatment of wet weather flows under all conditions as required by the Draft TMDL would likely be infeasible.

A TMDL should not be adopted that from its outset is not attainable within the limits of technology. One of the main goals of the Clean Water Act, namely the goal of fishable/swimmable waters, clearly recognizes that this goal may not always be attainable. (33 U.S.C. §1251(a)(2)(limited to "where attainable").) Thus, EPA should not adopt TMDLs that have demonstrably unattainable goals and targets as outlined in Attachment C.

3 BENTHIC MACROINVERTEBRATE TARGETS AND IN-STREAM ALLOCATIONS SHOULD BE REMOVED

We feel that EPA is going beyond its authority by setting targets and allocations for BMI in the Draft TMDL. Additionally, the State Water Resources Control Board (SWRCB) is actively engaged in the development of the Biological Objectives for the State of California. The Draft Benthic TMDL sets targets and allocations for BMI that are inconsistent with and arguably contradictory to the direction in which the biological objectives process is going. While we recognize that the policy is still under development, the State has made some determinations and developed scientific information that are relevant and were not considered as part of the Draft TMDL development. These elements include:

1. The SC-IBI is not appropriate for setting biologically based objectives due to the lack of appropriate reference sites and conditions for many locations in California, including the Malibu Creek watershed.
2. The scientific advisory group for the biological objectives is currently recommending that a multi scoring tool approach be used that does not rely solely on one index (such as the O/E).
3. The science advisory group is recommending consideration of a "grey area" for setting thresholds for biological objectives within which additional data would be collected before determining whether an impairment exists.

Finally, the analysis in the Draft TMDL is based on reference conditions that do not adequately represent the conditions in the Malibu Creek watershed, particularly the presence of the Modelo formation.

Consequently, the Draft TMDL should simply remove the numeric IBI and O/E targets in the Draft TMDL and defer setting biologically based targets until the policy and an appropriate approach have been established.

3.1 Establishing BMI Targets and Allocations are Outside of EPA's Authority

Comment 6-14

We feel it is inappropriate to include targets for benthic macroinvertebrates in the Draft TMDL, since they are not pollutants as defined under the Clean Water Act. The US District Court for the Eastern District of Virginia recently ruled that EPA exceeded its authority in establishing a flow-based TMDL[11]. This case ruled that EPA cannot use surrogates in place of regulating pollutants. According to the case, EPA is charged with "establishing TMDLs for appropriate pollutants; that does not give them the authority to regulate nonpollutants." The term "pollutant" is defined in the CWA as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." 33 U.S.C., § 1362(6). Benthic macroinvertebrates are not defined as pollutants by the Clean Water Act. However, there are benthic macroinvertebrate targets in the Draft TMDL and those targets are additionally assigned as in-stream allocations that are required to be included in the NPDES permits for dischargers. On page 10-13, the Draft TMDL states "*The biological response numeric targets for Malibu Creek and Lagoon are directly linked to the allocations and should be placed into the applicable regulatory mechanism (i.e., NPDES permit) in order to ensure that the benthic community condition achieves the water quality objectives.*" As result, this Draft TMDL is inappropriately regulating nonpollutants through the inclusion of benthic macroinvertebrate targets and corresponding in-stream allocations. By extension, it is also arguable that listings for such non-pollutant based impairments are also inappropriate under the Clean Water Act. Thus, the original listing is inappropriate, and therefore improperly the subject of this TMDL.

3.2 Proposed Benthic Macroinvertebrate Targets Are Inconsistent with Science Developed for the State Bioobjectives Policy

Comment 6-15

The experts on the Technical Team charged by the SWRCB to evaluate and develop appropriate BMI tools for eventual inclusion in the SWRCB's Biological Objective Policy have independently already concluded that the SC-IBI is not appropriate for setting biologically based objectives. The SC-IBI has been determined to be not appropriate primarily due to the lack of appropriate reference sites and conditions for many locations in California. The most widespread and universal problem with the SC-IBI identified by the Technical Team and Science Advisory Group experts is that reference expectations are based on a region-wide sampling of minimally impacted locations without regard to site-specific differences in natural gradients such as slope, precipitation, watershed size, etc. In the case of the Malibu Creek watershed, the local geologic differences are expected to result in significant differences from the reference conditions utilized for the SC-IBI. In addition to the general defect regarding watershed features that are not accounted for by SC-IBI reference expectations, the SC-IBI was developed for perennial wadeable streams, while Malibu Creek is non-perennial or non-wadeable along most reaches.

Rather than using the SC-IBI or other metric, such as the O/E, independently, these technical experts have developed a multi-metric tool that utilizes a modeled estimate of reference condition based on site-specific similarities in natural gradients from a statewide database of minimally impacted locations. This metric was then combined with an observed over expected ratio (O/E). However, unlike the O/E score calculated in the Draft TMDL that estimates reference expectation based on regional minimally disturbed locations without regard to matching natural gradients, the new O/E model has been updated to be based on temperature,

[11] Virginia DOT v. EPA, E.D. Va., No. 1:12-cv-775, 1/3/13

precipitation, elevation, and watershed area. These new scoring tools are ultimately combined into a single score for estimation of biological condition.

Additionally, the percentile threshold to be used for the new California biological objectives policy has not been decided, and the 10th percentile target included in the Draft TMDL was not specifically recommended as one of the options. Instead, the developers of the new multi-metric California Stream Condition Index approach [12] recommend a combination of some statistically defined threshold with a "gray area", which is intended to express the statistical uncertainty around the selected threshold. That "gray area" could be defined in a number of ways (see the CSCI presentation), and could be used conservatively (upper boundary) or "leniently" (lower boundary) depending on the states bias toward avoiding false negative or false positive findings of impairment. The SWRCB has not decided on whether or how to define or use this gray area concept, but the concept was not considered in the Draft TMDL. The 10^{th} percentile is a conservative target that has not been vetted and may not be consistent with the SWRCB's approach to biological objectives.

3.3 Reference Conditions Used to Develop SC-IBI and O/E Targets are Not Appropriate for the Malibu Creek Watershed

Comment 6-16

The Draft TMDL conclusions of impairment based on the SC-IBI are based on comparisons to inappropriate and unrepresentative reference sites (Section 8.1.2). All but one of the proposed reference sites are outside of and uninfluenced by the Monterey/Modelo formation geology and simply do not adequately represent the unique conditions of the Malibu Creek watershed (see also previous comments discussing the Modelo formation influence). Ultimately, the coastal "reference" streams used by USEPA are only relevant for considering expected nutrient concentrations and BMI scores from Malibu Creek tributaries lacking both urban development and Monterey/Modelo Formation rock, such as upper Cold Creek. Perhaps not surprisingly, SC-IBI scores from Cold Creek are similar to those from the Draft TMDL's coastal "reference" stream sites. However, the sites outside the watershed cannot serve as reference sites for assessing nutrients or BMI scores in areas tributary to Malibu Creek located in urban development built on, or downstream of, the Monterey Formation, as is done in the Draft TMDL, because those sites do not represent water quality impacts solely from urban development, but rather impacts from both urban development and the Monterey/Modelo Formation. The Draft TMDL authors acknowledge that… "*SC-IBI category rankings are not necessarily representative of the unique physical and geological situation of Malibu Creek*" (page 8-11 of the Draft TMDL report). Indeed, USEPA excluded at least two reference sites within the Modelo/ Monterey Formation. USEPA also excludes reference sites within Malibu Creek watershed with sulfate concentrations similar to those in Malibu Creek (median 591 mg/L, but with a maximum of 2,050 mg/L), and excludes reference sites with comparable phosphate concentrations to Malibu Creek's.

USEPA omitted from consideration BMI data that was available for potentially suitable reference sites from several monitoring programs. USEPA ignored three of Heal the Bay's

[12] [12] Science Advisory Group Meeting. October 17, 2013. Technical Team Causal Assessment Update Presentation. http://www.waterboards.ca.gov/plans_policies/docs/biological_objective/101712_meeting/three_scoring_tool.pdf

bioassessment reference sites *within* the watershed. These are sites 3 (Upper Cold Creek), 6 (Cheseboro Creek) and 9 (Las Virgenes Creek). BMI data were excluded from reference Site 16 of the Los Angeles County MS4 tributary monitoring program and from minimally developed Site LV-1 of the MCWMP. According to LVMWD, data for these sites were submitted to the EPA in September 2011 and should have been used to provide an accurate and complete picture of reference conditions in the Malibu Creek watershed.

Finally, on page 8-8 of the Draft TMDL, USEPA acknowledges monitoring they conducted themselves on the main stem at sites selected as potential reference sites. These sites are then explained away as not being appropriate reference sites because of upstream development. However, because the purpose of the monitoring was to look at less impacted sites *on the main stem*, the Draft TMDL should still valuate whether the sites represent natural conditions in the watershed that can naturally lower watershed IBI scores.

Similarly, the SC-O/E targets are also not based on an adequately representative condition. Although the Draft TMDL Appendix D indicates that all the Malibu Creek sites are "within the experience of " the SC-O/E model, the model does not adequately characterize the unique geology and resulting water quality of the Malibu Creek watershed. The predictors used in the California O/E model were mean annual precipitation, watershed percent sedimentary geology, and longitude. These predictors do not represent the elevated concentrations of sulfate, selenium, conductivity, magnesium, chloride, and phosphorus that are characteristic of the Malibu drainage that is influenced by the Modelo formation. The California SC-O/E model used in the Draft TMDL does not consider these factors or a number of other environmental gradients that have been found to be influential on BMI community structure and metrics, including elevation range, stream gradient, temperature, soil permeability, hydraulic conductivity, and watershed area.

4 DISCUSSIONS ON MS4 JURISDICTIONS SHOULD BE CLARIFIED IN DRAFT TMDL

Comment 6-17

The City of Thousand Oaks, Ventura County, and Ventura County Watershed Protection District (VCWPD are all listed in the Draft Benthic TMDL as being located with the Malibu Creek Watershed. The wasteload allocations in the Draft Benthic TMDL are assigned to Ventura County MS4s without identifying specific Ventura County permittees as responsible parties. As there are numerous other municipalities that are covered by the Ventura County MS4 permit, the Draft TMDL should clarify that the Ventura County MS4 allocations only apply to the agencies identified in the Draft TMDL.

This is an important distinction because on page 4-1, the Draft TMDL states that "all areas within the watershed are covered by municipal stormwater permits for LA and Ventura counties." This is an incorrect statement that should be corrected. Municipal Storm Sewer System drainages within the jurisdictions of the City of Thousand Oaks and unincorporated Ventura County are covered by the municipal stormwater permits for Ventura County. However, open space under the jurisdiction of state and federal agencies and portions of the City and County that do not have MS4 systems are not covered by the permit. The language included in the Draft TMDL in essence makes MS4s responsible for all discharges in Ventura County, including agricultural and open space discharges over which they have no authority. As a result, this language should be clarified to reflect the true coverage of the MS4 permit. Examples of the language that should be modified include:

- Page 5-3 includes Table 5-1 that summarizes land use by MS4 jurisdiction. However, this table includes agriculture and undeveloped land. It appears that this table represents all land area in Ventura County, not just the land area under the jurisdiction of the MS4 permittees. This table and associated discussion should be clarified as being the land areas within LA and Ventura Counties and not reference the MS4 permittees. Or, the table should be modified to reflect only the areas within the MS4 jurisdictions.

- On page 5-4 under Non-Point Sources of Pollution, the Draft TMDL states "However, the entire watershed is covered by MS4 permits and flows from properties that drain directly to the creeks without passing through an organized stormwater conveyance represent minimal amounts of impervious area." The majority of the upper watershed is not covered by an MS4 permit and many open space areas drain to the creek without passing through an MS4. As a result, this statement is incorrect and makes MS4s responsible for all drainage in Ventura County. The MS4s do not have authority over or responsibility for these discharges.

The following two figures show the MS4 system for the County of Ventura and City of Thousand Oaks respectively.

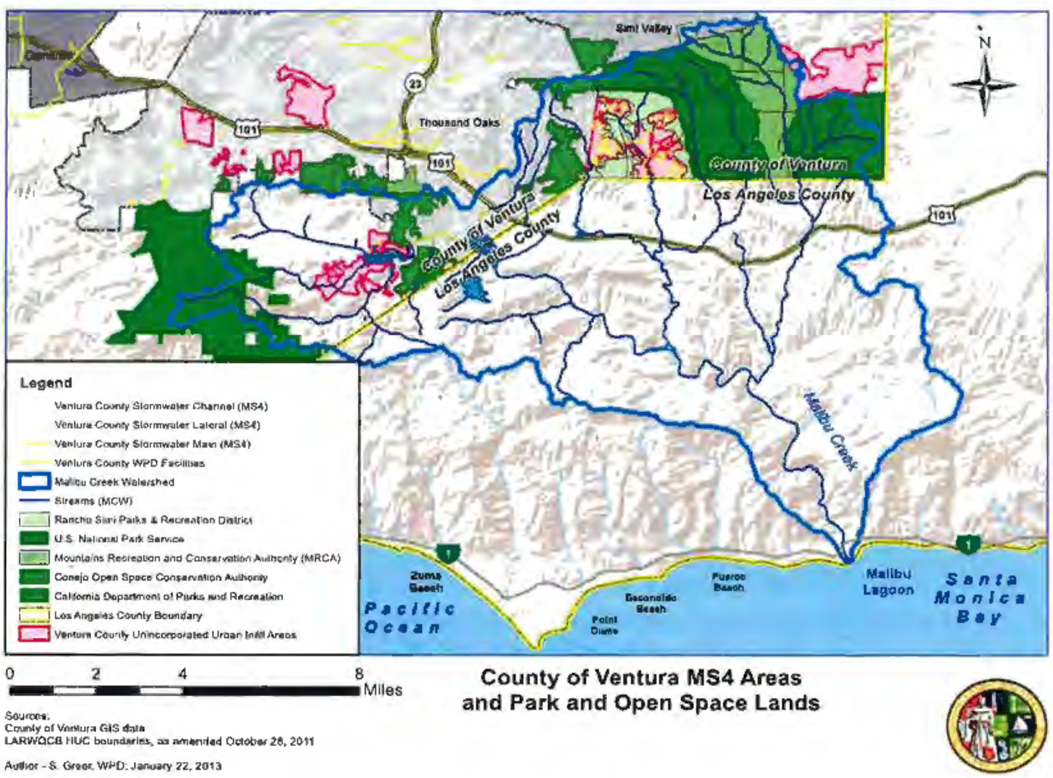


Figure 9. Ventura County Unincorporated Area MS4 and Watershed Protection District Facilities

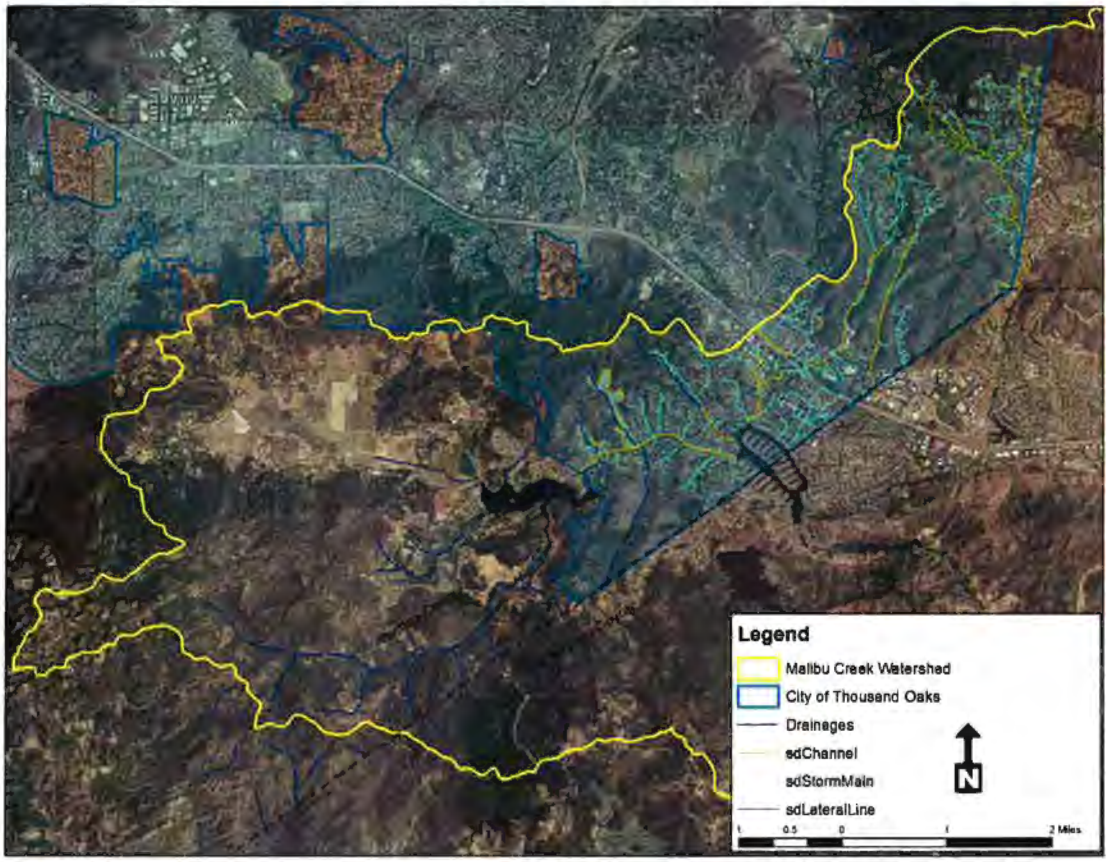


Figure 10. City of Thousand Oaks MS4 System

5 THE DRAFT TMDL TARGETS AND ALLOCATIONS SHOULD ONLY APPLY TO THE MAIN STEM OF MALIBU CREEK

Comment 6-18

As required by the consent decree, the Draft TMDL addresses the impairments for benthic-macroinvertebrate bioassessments in Malibu Creek and benthic community effects in Malibu Lagoon. No other reaches or tributaries in the Malibu Creek watershed are included on the consent decree or specifically identified in the Draft TMDL as being addressed. There is no obligation to include additional tributaries in the Draft TMDL and the Draft TMDL analysis does not sufficiently develop the technical and stressor analysis to justify the application of the proposed targets and allocations to other reaches. Specifically, the modification to the Consent Decree in 2010 that added the Malibu Creek bioassessment community listings also removed the requirement to develop a TMDL for sediment in the tributaries. As discussed in previous comments, there are a number of concerns with the science and technical analysis included in the Draft TMDL and the ability of the current bioassessment information to be used to determine impairments in the Malibu Creek watershed given its unique geologic characteristics. As a result, the Draft TMDL should not address any reaches that were not explicitly required by the Consent Decree.

Additionally, we feel that the technical analysis does not support inclusion of the tributaries at this time. Although data from other reaches are discussed throughout the document, the document does not clearly identify which tributaries are covered by the Draft TMDL and what impairments are being addressed by the Draft TMDL for those reaches. The Draft TMDL in some cases discusses only the main stem, in other cases it refers to main tributaries, and in others refers to tributaries draining to the main stem. As a result it is not possible to determine if the analysis presented applies to the tributaries. For example, the stressor analysis identifies diazinon as a possible cause of toxicity in some tributaries that is not present in the main stem. If a stressor analysis was done for each tributary, it is possible that different stressors would be identified. Additionally, data are not presented in the Draft TMDL that evaluate the current status of mat algae coverage in the tributaries to determine if the information presented in the Draft TMDL applies to the tributaries as well as the main stem.

As discussed in section 1, we were able to review a data file of algal coverage data for the watershed tributaries. Although we have concerns about the use of percent cover data provided as justification for consideration of impairments, these data were considered in the Draft TMDL and are the only available data for analysis. A review of the file confirmed that tributary analyses need to be considered separately from the main stem. Five tributary sites in the provided file have recorded algal percent cover observations since 2006 (though data do not appear to have been collected in 2007 and 2008). Of these five sites, only site LV-5, has consistent observations over the 60% coverage target in the Draft TMDL. A few sites have some observations over 30%, but generally the values fall below the Draft TMDL thresholds. Additionally, the site downstream of LV-5, LV-13 has lower percent cover observations. This review indicates that making a blanket statement that tributaries continue to be impaired for algal coverage is not correct and that algal biomass may not be contributing to any observed benthic impairments in the tributaries.

Based on this analysis, we request that the Draft TMDL clarify that the proposed targets and allocations apply solely to the main stem of Malibu Creek and Malibu Lagoon. In particular, Section 10 should be modified throughout to remove references to the tributaries. Additionally, Table 10-5 should only include responsible parties that discharge directly to the main stem or lagoon.

6 THE DRAFT TMDL ALLOCATION DISCUSSION SHOULD REMOVE REQUIREMENTS TO INCLUDE BIOLOGICAL AND ALGAL RESPONSE TARGETS IN NPDES PERMITS

Comment 6-19

On page 10-11, the Draft TMDL includes allocations that state "both the nutrient allocations and the algal coverage target must be met." Allocations cannot regulate non-pollutants, nor do the dischargers have any control over the biological response of the waterbody to nutrient discharges. As a result, it is not appropriate to assign allocations that include the algal coverage target to the MS4s.

In addition, please remove the following statement on page 10-13:

> "The biological response numeric targets for Malibu Creek and Lagoon are directly linked to the allocations and should be placed into the applicable regulatory mechanism

(i.e., NPDES permit) in order to ensure that the benthic community condition achieves the water quality objectives."

As discussed for the algal targets and in the main body of the comment letter. We do not believe that EPA has the authority to regulate benthic macroinvertebrates in a Draft TMDL and cannot assign them as allocations. MS4 dischargers do not have the ability to control benthic macroinvertebrates, just the pollutants that may impact them. As a result, it is inappropriate to include the statement above in the Draft TMDL.

Finally, it is not appropriate to hold individual NPDES permit holders responsible in their NPDES permits for attainment of algal coverage and biological response numeric targets. Insufficient evidence has been provided in the Draft TMDL to indicate that any individual NPDES permit holder is causing or contributing to any biological condition impairment. Individual NPDES permit holders should not be held responsible for attaining targets that may not be related to their discharges, and that may require actions beyond the NPDES permit holder's control to resolve.

7 THE DRAFT TMDL ALLOCATION DISCUSSION SHOULD CLARIFY THE MEANING OF IN-STREAM ALLOCATIONS

Comment 6-20

Section 10.3.3 needs to be revised for clarity. The section includes both in-stream allocations and Table 10-5 that lists the responsible parties as having in-stream allocations. However, the Draft TMDL is not clear on where the in-stream allocations apply and how in-stream allocations will be included in NPDES permits. Are the allocations to be applied as receiving water limitations? If so, the Draft TMDL should be clear that these are receiving water limitations and that any end-of-pipe allocations that are determined for individual dischargers should be developed using a technical analysis (i.e. model) that provides a linkage between the discharges and the in-stream allocation. Responsible parties that do not directly discharge to the reaches for which the in-stream allocations apply should not be included Table 10-5.

8 ADDITIONAL CLARIFICATION REQUESTS

This section of the technical comments provides additional requests for clarification in the Draft TMDL in addition to the main comments outlined above. This portion of the comments has been organized by section of the Draft TMDL.

8.1 Section 1 Specific Comments

Comment 6-21

On page 1-4, the Draft TMDL states for Malibu Lagoon "The impact from the previous construction activities led to loss of native species, increasing urban runoff, and excessive nutrient inputs." No justification is provided for this statement other than development occurred. Although these impacts may have occurred, without data to support this statement, it should be removed.

8.2 Section 2 Specific Comments

In section 2.1.3, the Draft TMDL incorrectly identifies that "Any actions that can adversely affect water quality in all surface and ground waters must be consistent with the maximum benefit to the people of the state, must not unreasonably affect present and anticipated beneficial use of such water, and must not result in water quality les than that prescribed in water quality plans and policies." The Antidegradation Policy does not require all actions to be consistent with the maximum benefit to the people of the state. Only actions that will degrade high quality waters require consideration of the maximum benefit to the people of the state. Comment 6-22

On page 2-6, the Draft TMDL refers to a 2008 303(d) list. Although the Los Angeles Regional Water Quality Control Board developed a staff report and recommendations in 2008, there was no 303(d) list approved in 2008 by the SWRCB or USEPA. The section should clarify the references in this section and where appropriate refer to the 2010 list. Comment 6-23

Page 2-9. There is no basis for the citation that 40 taxa is a threshold for a healthy community of benthic macroinvertebrates in Malibu Lagoon. This threshold should be removed. Additionally, it conflicts with the statements in Section 10 that say 35 is the appropriate target. Comment 6-24

8.3 Section 3 Specific Comments

Page 3-2. The target for Benthic Community Diversity should be removed. There is no basis for this target or any way for it to be measured. It is not numeric and is duplicative of the IBI and O/E targets which are already duplicative of each other. Additionally, it is inconsistent with Section 10 where no target is included for the creek. Therefore, it should be removed from Section 3. Comment 6-25

Page 3-2. The last portion of the last sentence in the Benthic Algal Coverage target should be removed as follows "and ideally less than 100 mg/m^2 (referred to as the BURC II/III and BURC I/II boundaries." As is discussed later in the Draft TMDL, there are questions about the ability of the watershed to achieve 150 mg/m^2 due to natural conditions and there has been no technical data presented anywhere in the document that justifies consideration of 100 mg/m^2 as a target. The NNE Policy has not yet been promulgated and it is premature to include a lower algal biomass target without technical justification in the report. In fact, the Draft TMDL states on page 10-9 that "nutrient levels are naturally elevated to some extent due to the presence of marine sedimentary rocks, further suggesting use of the BURC II/II threshold as a target." The inclusion of the BURC I/II threshold of 100 mg/m^2 in the target discussion creates confusion about the targets in the Draft TMDL and it should be removed. The same statement should also be removed from page 10-2. Comment 6-26

Page 3-3. How do reference conditions based on data in the upper reaches reflect the concentration needed to protect the Lagoon? What analysis was provided in the Draft TMDL that nutrient concentrations in the Lagoon need to be lower? Comment 6-27

Page 3-3. There is no basis for the determination that less than 20 taxa is an impaired system. As stated on page 3-3, there where no reference site data available for the Lagoon to determine whether or not it is impaired and what the appropriate number of taxa should be in an unimpaired lagoon. Also, on page 3-4, the target goal is set at 35 and in Section 2, a number below 40 is considered impaired. This shows there is no consistent basis for the target and that it should be removed. Comment 6-28

8.4 Section 4 Specific Comments

On Page 4-12, the Draft TMDL states that no GIS coverages were available for Thousand Oaks and Ventura County stormwater systems. GIS coverages for both these areas are available and can be provided to USEPA, if needed. Comment 6-29

8.5 Section 6 Specific Comments

On page 6-8, Table 6-4 summarizes the Draft TMDL model analysis that was done to predict pre and post impacts of development. The text below the table states *"There is a dramatic change in extreme low flow frequency: In the pre-impact period the median number of days with zero flow was four per year, whereas none occur in the post-impact period."* However, Table 6-2 shows the average flow for many months in 2007-2010 as being zero. This appears to indicate that the analysis shown in Table 6-4 is not accurately reflecting the actual conditions in the watershed. Comment 6-30

8.6 Section 7 Specific Comments

On page 7-7, Table 7-3 lists a criteria value for conductivity that is an extrapolation of a TDS water quality objective. It is inappropriate to call this a criterion in the table as no water quality criterion for conductivity applies in the watershed. The header in the table should be changed. Comment 6-31

On page 7-9, Table 7-4 discusses the results of the turbidity analysis for Malibu Creek. The average turbidity for the main stem sites ranges from 1.31 to 2.62 NTU. This is compared to reference reaches that are located outside the watershed with no analysis or comparison as to the soil conditions. As discussed earlier in the Draft TMDL, the Malibu Creek watershed has highly erodible soils and it is inappropriate to determine the watershed is exceeding turbidity standards when compared to reference conditions that are not within the watershed. Additionally, determination of turbidities in the 1 to 2 range as being impaired does not seem accurate. Tertiary treated wastewater has turbidity in that range and is considered high quality recycled water. Comment 6-32

On page 7-16, LVMWD data is not summarized because it does not include Total N or Total P data. However, all of the Heal the Bay data is summarized and used as the basis for multiple analyses and it does not include Total N or Total P data either. Why was this data not included in the analysis when the Heal the Bay data was included? Comment 6-33

Section 7.5 is very confusing and does not provide a clear understanding of reference conditions or data analysis. The section mixes discussion of inorganic and total forms of nitrogen and phosphorus. The discussion and information shown in Figure 7-11 demonstrates the importance of only discussing total nitrogen and the significant impacts of other forms of nitrogen on the analysis. This section should be clarified and only discuss total forms of the constituents. Comment 6-34

8.7 Section 10 Specific Comments

On page 10-8, the Draft TMDL states "TMDL nitrate targets have generally been met in the Malibu creek main stem". However, the 2003 TMDL summer target was for total nitrogen, not nitrate. The Draft TMDL should be revised here and throughout the document to reflect the total nitrogen target for summer time, and all references to comparisons to nitrate concentrations should be removed or revised. Comment 6-35

The statement on page 10-10 that "Strong evidence indicates that the nutrient targets established in the 2003 TMDL have been mostly met" is in contradiction with other statements throughout the Draft TMDL and the data analysis presented in previous sections and should be removed. Comment 6-36

8.8 Section 11 Specific Comments

In Section 11, the Draft TMDL should include a recommendation to revisit the Draft TMDL once the State's bioobjectives are developed. The Draft TMDL should be clear that the implementation schedule for any required actions should reflect the schedule for the biological objective development to ensure that significant costs are not incurred before an appropriate analysis of the biological condition of the Malibu Creek watershed can be developed in accordance with the State's Policy. Comment 6-37

ATTACHMENT C

Comment 6-38

Technical Achievability Assessment of the Malibu Creek and Ventura River Nutrient TMDLs

January 2013

Prepared by **Geosyntec Consultants, Inc.**

Prepared for **County of Ventura**

Geosyntec
consultants

Technical Achievability Assessment of the Malibu Creek and Ventura River Nutrient TMDLs

Ventura County
January 2013

Executive Summary

The Draft Malibu Creek & Lagoon Total Maximum Daily Load (TMDL) for Sedimentation and Nutrients to address Benthic Community Impairments (Malibu Creek Benthic TMDL) (U.S. Environmental Protection Agency [USEPA] Region 9, 2012) and the Draft Ventura River Reaches 3 and 4 TMDL for Pumping & Water Diversion-Related Water Quality Impairments (Ventura River Pumping TMDL) (USEPA Region 9, 2012) have both established numeric targets for nutrient reduction that, based on available solutions, are infeasible to consistently meet. Although non-structural and structural Best Management Practices (BMPs) are capable of reducing total nitrogen (TN) and total phosphorous (TP), this analysis finds no solution capable of meeting the proposed numeric targets with the consistency that is required. The TMDL-established numeric targets do not allow for any exceedances within each specific water body, which, due to the variable nature of influent quality and BMP performance, makes meeting these targets infeasible.

The Malibu Creek Benthic TMDL establishes summer and winter TN numeric targets of 0.6 mg/L and 1.0 mg/L, respectively, and a year-round TP numeric target of 0.1 mg/L. The International BMP Database shows that no traditional structural treatment BMP is capable of producing a median (i.e., 50% of samples exceed this) TN effluent concentration of 0.6 mg/L, a 75th percentile (i.e., 25% of samples exceed this) TN effluent concentration of 1.0 mg/L, or a 75th percentile TP effluent concentration of 0.1 mg/L (shown in Figures 1 and 2) (Geosyntec Consultants, *et al*, 2012). Therefore, no traditional structural treatment BMP types are available to consistently meet these low TMDL numeric targets.

The Ventura River Pumping TMDL establishes a dry weather TN numeric target of 1.5 mg/L and a dry weather TP numeric target of 0.028 mg/L. The International BMP Database shows that no traditional structural BMP is capable of producing a 75th percentile (i.e., 25% of samples exceed this) TN effluent concentration of 1.5 mg/L or a 25th percentile (i.e., 75% of samples exceed this) TP effluent concentration of 0.028 mg/L (shown in Figures 1 and 2) (Geosyntec Consultants, *et al*, 2012). Therefore, no traditional structural treatment BMP types are available to consistently meet these low TMDL numeric targets.

Additionally, the inability to achieve 100 percent coverage of non-structural BMPs, combined with the economic and siting constraints associated with structural BMPs, add further compliance feasibility complications. The conflicting treatment conditions required for TN and TP removal (i.e., denitrification

of nitrate requires anaerobic conditions, however this typically results in the export of previously-bound phosphorus from soil or filter media) also make developing a single cost-effective solution technically infeasible. Due to these various constraints, achieving the proposed numeric targets will require costly chemical/mechanical systems (which are typically impractical for treating wet weather flows) or an impractical suite of advanced natural treatment systems.

Introduction

The purpose of this memorandum is to evaluate the feasibility of attaining the nutrient numeric targets outlined in the Draft Malibu Creek Benthic TMDL and the Draft Ventura River Pumping TMDL. While a variety of nutrient numeric targets exist, total nitrogen (TN) and total phosphorous (TP) were selected for this analysis based on their data availability and consistency between TMDLs.

The following sections outline the existing numeric targets for each of the TMDLs, the available solutions for meeting these targets, and a discussion of the feasibility of applying such solutions.

TMDL Numeric Targets

TMDL numeric targets are established to measure attainment of the water quality standards for the most significant pollutants within each specific TMDL. These targets were set based on reference stream data, with the goal of matching reference stream conditions for control of algal stimulation and eutrophication, and ultimately biota protection. Table 1 displays the range of TN and TP numeric targets defined for MS4s in the Draft TMDLs.

Table 1: TMDL Numeric Targets Summary

Constituent	Draft Malibu Creek Benthic TMDL		Draft Ventura River Pumping TMDL[1]	
	Summer	*Winter*	*Dry*	*Wet*
TN (mg/L)	0.6	1.0	1.5	5[2] - 7.4[3]
TP (mg/L)	0.1	0.1	0.028	-

[1] Draft Ventura River Pumping TMDL numeric targets are presented as waste load allocations.
[2] NO3-N + NO2-N only
[3] TMDL WLAs of 10 mg/L NO3-N +NO2-N apply to reaches downstream of Reach 3, however the TMDL only applies to Reaches 3 and 4, therefore 10 mg/L is not shown here.

Non-Structural Source Controls

Due to their low cost relative to structural treatment controls, the first emphasis of most nutrient TMDL implementation strategies is to exhaustively explore and implement non-structural BMPs to control nutrients at their source. Non-structural BMPs include outreach, inspection, and enforcement-based programs, such as those targeting homeowners to address over-irrigation and car-washing as sources of nutrient rich dry weather runoff, pet owners to address pet waste, homeowners and landscapers on proper fertilizer application, and food outlets to address sidewalk hose-down and proper trash and grease trap management. Non-structural BMPs also include illicit discharge detection and elimination (IDDE) programs, including efforts to identify chronic sources of nutrients into the MS4. Street sweeping and catch basin cleaning are also emphasized and intended to remove sources of sediment, trash and organic litter, all of which may contribute nutrients to the MS4.

The City of Tulsa, Oklahoma (City) carried out a multi-dimensional stormwater quality management program in the 1990s that used non-structural BMPs including an IDDE program, litter collection campaigns, illegal dumping minimization programs, hazardous waste collection programs, advertising campaigns, and a stormwater drain stenciling program. The City conducted wet weather sampling before and after program implementation to determine four year event mean concentrations (EMC) used to quantify the program's success. The pre-program TP EMC was 0.33 mg/L, which was reduced to 0.27 mg/L as a result of the program. The pre-program Total Kjeldahl Nitrogen (TKN)[4] EMC was 1.66 mg/L, which was reduced to 1.35 mg/L as a result of the program (Lehner, *et al*, 1999). Although the success of non-structural BMPs is difficult to quantify, and this case study represents a relatively successful program, the efforts exerted still resulted in post-program average EMCs that are significantly higher than the do-not-exceed TMDL numeric targets cited above.

Even with the most optimistic assumptions, a thoroughly exhaustive and comprehensive implementation of non-structural BMPs can simply not achieve compliance with any of the TMDL numeric targets unless discharges are completely eliminated, which is not an option during wet weather and may not be feasible during dry weather given the existence of permitted flows (e.g., fire hydrant testing, groundwater inflow, etc.). This is partly because outreach, inspection, and enforcement can never achieve perfect control outcomes (i.e., some target groups will miss outreach, some behaviors won't change, and some waste generation activities will miss inspection). This is also partly because some urban nutrient loads are unable to be addressed by such programs (e.g., nutrients in stormdrain sediments consistently mobilize whenever flows are present, such as during one of the many allowed dry weather flow sources) and

[4] TN will be higher than TKN (ammonia plus organic nitrogen) since TN also includes NO3-N and NO2-N.

because there are also natural sources of nutrients (e.g., plant debris). Additionally, many street sweeping programs fail to remove fine particles, which often contain the highest concentrations of pollutants, and overall one study found that street sweepers were only capable, on average, of removing 50% of the debris on the street (Taylor, *et al*, 2002). Evaluations of the effectiveness of sweeping and cleaning programs have consistently indicated that they are not able to capture 100% of sediments and organic debris.

Structural BMPs

Due to limitations in the effectiveness and consistent performance of non-structural BMPs, more costly and time-intensive (i.e., more advance planning time is required) structural BMPs may be employed due to their more reliable, effective, and controllable nutrient reduction capabilities. In general, more natural, passive, sustainable, and multi-benefit structural BMPs are preferred and recommended (as opposed to energy-intensive, mechanical systems). Dry weather structural BMPs may potentially include localized infiltration and diversions to the sewer system. During wet weather, however, many structural BMPs are often not capable of achieving compliance due to substantially greater and more variable inflow rates. Treating wet weather flows would require considerable transient storage, more than is often feasible based on site constraints.

Geosyntec is co-principal investigator on the EPA/ASCE International Stormwater BMP Database, which is used to help evaluate and predict performance of traditional structural treatment BMPs in removing constituents. When comparing nutrient removal statistics, the database includes wet weather structural BMPs such as grass strips, bioretention, bioswales, composite/treatment trains, detention basins (surface/grass-lined), green roofs, manufactured devices, media filters, porous pavement, retention ponds (surface pond with a permanent pool), wetland basins[5], and wetland channels (swales and channels with wetland vegetation) (Geosyntec Consultants, *et al*, 2012). Figures 1 and 2 display statistically evaluated monitoring data from the database describing structural BMP performance by comparing influent and effluent TP and TN concentrations. The range of TMDL numeric targets has been identified on Figures 1 and 2 for reference, with the TP targets ranging from 0.028 to 0.1 mg/L (varies based on specific TMDL), and the TN targets ranging from 0.6 to 7.4 mg/L (varies based on specific TMDL). Effluent concentrations have been shown to be a more robust predictor of BMP performance than percent concentration reduction, therefore they are used here for comparison with TMDL numeric targets.

[5] The wetland basins compared in this analysis are free surface wetlands.

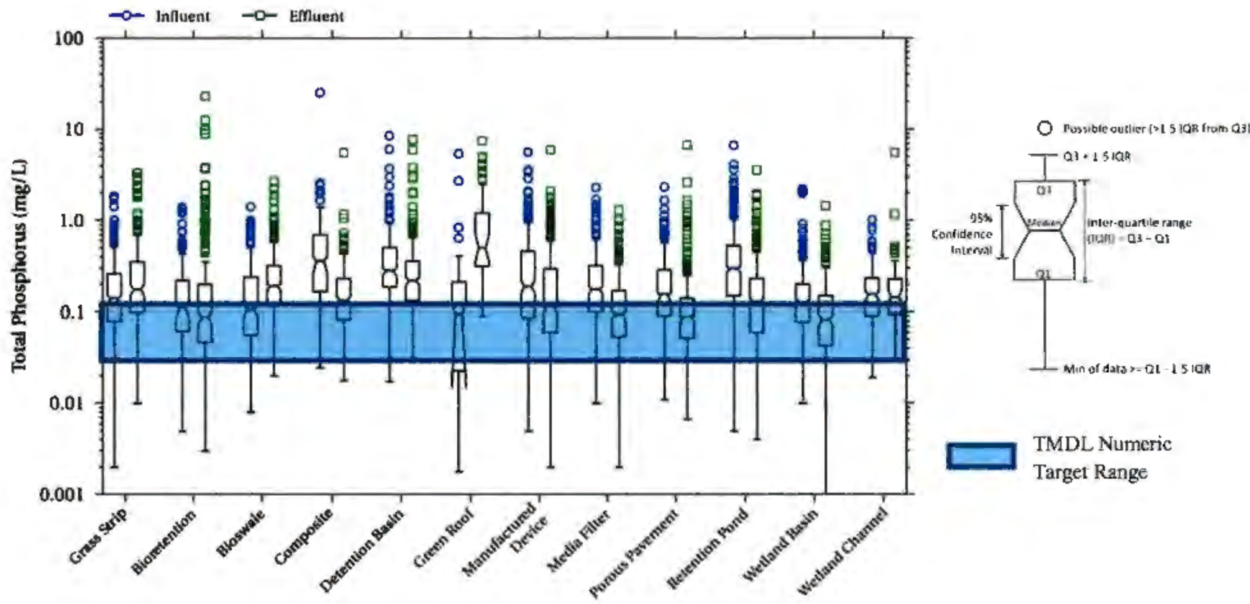


Figure 1. Structural BMP performance (TP)

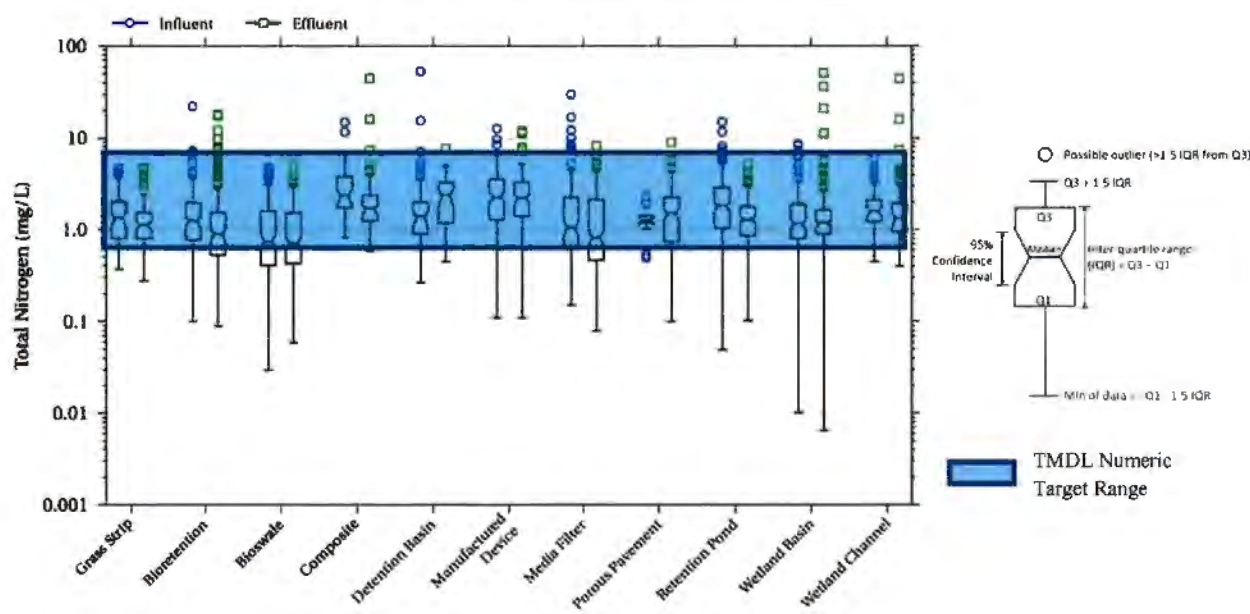


Figure 2. Structural BMP performance (TN)

Overall, the most effective BMP types for TP (i.e., those with the lowest effluent concentrations and with non-overlapping influent-effluent confidence intervals), which all have a median effluent concentration less than 0.1 mg/L TP, are bioretention, media filters, porous pavement, and wetland basins. The most effective BMP types for TN, which all have a median effluent concentration less than 1 mg/L, are bioretention and media filters[6]. **Therefore, based on a comparison of reported BMP effluent concentrations and the TMDL numeric target ranges, even these best performing structural BMPs are not capable of consistently (i.e., meeting ≥75% of the time) achieving any of these TMDL numeric targets except where TN is around 2 mg/L or greater.**

Beyond those BMPs studied in the database, additional structural BMPs appropriate for nutrient reduction exist such as subsurface flow wetlands (which have less performance data available but initial datasets suggest a relatively high level of effectiveness) and "zero discharge" types that rely on infiltration (e.g., infiltration trenches and basins) or capture and use (e.g., rainwater harvesting cisterns). While data for subsurface wetland pollutant removal vary widely, one study conducted by the University of New Hampshire from 2004 through 2010, reports an expected average subsurface wetland effluent TP concentration of 0.02 mg/L (UNHSC, 2012) and a separate study reports an expected average subsurface wetland effluent TN concentration of 0.47 mg/L (Lyon, 2006). However, these are average effluent concentrations and therefore results above the 0.6 mg/L TN and 0.028 mg/L TP targets would be very likely. Infiltration basins and capture and use systems will result in 100% removal of pollutants captured, however the quantity captured is dependent on the storage available. Most importantly though, it is not feasible to completely retain or capture/use all wet weather MS4 discharges, and so some treatment and discharge would be necessary. Additionally, the Environmental Protection Agency (EPA) reports that infiltration basins are only capable of removing 55-60% of TN and 60-70% of TP (EPA, 2012). Therefore, even if the nutrient load is removed from the discharge, a percentage will infiltrate into the groundwater and ultimately influence nearby surface water.

These "additional" structural BMPs are effective for nutrient removal but are subject to local and site-specific constraints, which must be evaluated before implementation. For instance, infiltration BMPs are not appropriate for areas with relatively impervious soils, shallow groundwater, steep hillsides, landslide or liquefaction risk zones, subsurface contamination, or close proximity to certain structures. Similarly, capture and use BMPs are not cost effective for areas with little available water demand (such as minimal landscaping irrigation needs) or where water demand is temporally inconsistent with available supply (frequently the case in the arid southwest where rainfall occurs during one season while peak irrigation demands occur during a different period). Finally, "zero discharge" type BMPs are not appropriate if the

---

[6] Bioswales also have a low effluent concentration however they are not further considered here because their influent and effluent concentrations are not statistically different and therefore this BMP type is likely not effective for TN removal.

discharge area warrants a footprint area that is not available at the site. Therefore, these low numeric nutrient targets leave many urban areas without feasible or cost-effective wet weather structural BMP options available for TMDL compliance.

Basin-Wide Implementation

Even combining non-structural and structural BMPs, the ability to develop a basin-wide implementation plan and meet specific numeric targets is difficult. Such plans often require high investments and may result in minimal benefit. For instance, the Chesapeake Bay nutrient management strategy has been an extremely challenging task that has resulted in very high expenditures with mediocre results. Out of concern for the nutrient enriched Chesapeake Bay, the EPA along with local states agreed to implement a basin-wide nutrient reduction strategy in 1987. With the ultimate goal of improving dissolved oxygen (DO) conditions within the bottom waters of the bay, a 40% nitrogen and phosphorous load reduction goal was set for achievement by 2000. Between 1985 and 1996 an estimated \$3.5 billion were spend toward nutrient controls; 20% of these funds allocated to point source nutrient reductions. As of 1996, nitrogen had been reduced by 16% and phosphorous by 53%, however there was no observable benefits to the DO conditions (Butt, *et al*, 2000). Furthermore, a more recent study suggests that nitrogen loads from urban/suburban sectors have actually increased in the Chesapeake Bay by 3%, and phosphorous by 7% between 1985 and 2009 (Committee on the Evaluation of Chesapeake Bay Program Implementation for Nutrient Reduction to Improve Water Quality, 2011). In 2010, the EPA established the Chesapeake Bay TMDL to restore the Bay by 2025, with an interim goal of 60% restoration by 2017 (EPA, 2010). To accelerate progress, a two-year milestone strategy was developed that included the application of land-based BMPs to ensure each jurisdiction was on track for reaching the TMDL goal in 2025. A review of the 2-year milestone status found the costs of urban stormwater BMPs to be between a few thousand dollars per impervious acre up to \$200,000 per impervious acre. The high expenditures were attributed to space constraints and prohibitive costs of purchasing land (CECBP, 2011).

The Chesapeake Bay case study is an example of a costly stormwater nutrient management program that used available non-structural and structural BMPs and ultimately failed to achieve the established program goals. As targets were continually not met, the funds continued to grow, which is a potential result if the available solutions and technology are incapable of achieving the established numeric targets.

Discussion

Although some BMPs have been shown to meet the TMDL targets, even if 100% of the stormwater volume was treated and the BMPs were capable of achieving the TMDL numeric targets, they would likely not meet them on a consistent basis due to the variability in runoff volume and performance of BMPs. Furthermore, site constraints will limit the quantity of treatable volume and reduce the overall runoff capture percentage.

For dry weather compliance; solutions such as public outreach and education, IDDE, and localized infiltration or diversion to the sewer can potentially be effective but are largely limited by implementation coverage. Non-structural BMPs are less expensive but due to uncontrollable behavior, are incapable of locating and reducing/eliminating 100% of all dry-weather sources within the watershed. Therefore, dry-weather BMPs are expected to reduce TN and TP loading to some degree as demonstrated in Tulsa, Oklahoma, but are most likely not capable of consistently meeting the numeric targets outlined in the TMDLs unless 100% of MS4 discharges can be prevented or captured.

Based on the available wet weather technologies presented in the previous section and in Figures 1 and 2, the best performing structural BMPs for treating both TN and TP are bioretention, media filters, and subsurface flow wetlands. However, as previously discussed, site constraints regarding soil suitability may limit the application of bioretention systems and media filters. Additionally, the large quantity and variability in runoff volume is generally not suitable for subsurface wetlands unless a sufficient footprint is available to allow adequate pretreatment, flow equalization, and residence time in the wetland system. Finally, even if construction is feasible, the median effluent concentrations for TN and TP were determined based on a range of data that includes much higher concentrations that would have exceeded the TMDL numeric targets. As a result, 100 percent achievement of the numeric targets is not feasible. **Due to these limitations, there is no apparent single solution available to consistently meet the numeric targets established within each TMDL for both TP and TN. The alternative solution will instead likely necessitate a costly and impractical suite of advanced natural systems or mechanical treatment systems**.

Furthermore, achieving nutrients numeric targets through treatment using traditional BMPs is made more difficult by the fact that different reduction-oxidation conditions are required to treat stormwater for the predominant forms of TN and TP in stormwater. A 2010 evaluation of advanced biofiltration media composition showed an increase in nitrate removal with media containing increasing percentages of granular activated carbon (GAC); however, this same increase in GAC resulted in a higher export of phosphate. Conversely, the addition of peat moss in the mixture resulted in no substantial nitrate removal, but resulted in less phosphate exported. The results of this study suggest that there are tradeoffs that the designer must consider when treating both nitrate and phosphate, which will ultimately decrease the overall efficiency of the design (Pitt, *et al*, 2010). In addition, the removal of nitrates within a bioretention system requires denitrification under anaerobic conditions. However, such anaerobic conditions can potentially export phosphate from the system, thus increasing TP in the effluent (Pitt, *et al*, 2010). One study that analyzed the capabilities of an optimized bioretention soil mixture found similarly that a saturation zone (anaerobic condition) would increase nitrate removal and decrease ortho-phosphate removal (Palmer, 2012). However, a separate study of laboratory and field data for various bioretention designs found that the inclusion of an anaerobic zone had a limited impact on the system and actually showed an increase in TP reduction when analyzing a system with an anaerobic zone (Hunt, 2003). These academic studies evaluated optimized designs under controlled conditions, and do not represent BMP implementation on a basin-wide scale. However, even such controlled conditions provide varying results, which further complicates the design for TN and TP removal. Based on a review of available data and literature, no suitable treatment BMP was discovered that can efficiently treat both TP and TN to very low levels concurrently. Therefore, multiple structural controls (such as aerobic and anaerobic units in series) will be necessary within a treatment train to treat for TN and TP sequentially.

The difficulty in achieving high coverage with non-structural BMPs (i.e., for source control and dry weather MS4 discharge prevention), the site constraints associated with structural BMPs, and the very limited set of structural BMPs capable of consistently meeting the very low TN and TP numeric targets, make developing a basin-wide nutrient reduction strategy very difficult. As shown in the Chesapeake Bay case study, high investments will be required without the promise of beneficial results. As a result, consistent MS4 compliance with the low TMDL numeric targets at all outfalls during both dry and wet weather is considered technically infeasible.

References

Butt, Arthur J, and Bonnie L. Brown. 2000. *The Cost of Nutrient Reduction: A Case Study of Chesapeake Bay.* Coastal Management 28:2,175-185.

Committee on the Evaluation of Chesapeake Bay Program Implementation for Nutrient Reduction to Improve Water Quality. 2011. *Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation.* The National Academies Press. Washington, D.C.. Available at http://www.mawaterquality.org/capacity_building/documents/NASReport.pdf.

Environmental Protection Agency (EPA). "National Menu of Stormwater Best Management Practices." *National Pollutant Discharge Elimination System (NPDES).*Web. 16 Jan. 2013. Available at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/.

EPA. 2010. Final Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment. Available at http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html.

Geosyntec Consultants, and Wright Water Engineers.2012. *International Stormwater Best Management Practices (BMP) Database Pollutant Category Summary Statistical Addendum: TSS, Bacteria, Nutrients, and Metals.*International Stormwater BMP Database.

Hunt, William F., III. 2003. *Pollutant Removal Evaluation and Hydraulic Characterization for Bioretention Stormwater Treatment Devices.* Thesis. The Pennsylvania State University.

Lehner, P.H., Aponte Clarke, G.P., Cameron, D. M., and Frank, A. G. 1999, *Stormwater Strategies: CommunityResponses to Runoff Pollution,* Natural Resources Defence Council, New York, New York. Available at www.nrdc.org/water/pollution/storm/stoinx.asp.

Lyon, S., 2006. *Subsurface-Flow Constructed Wetlands for Water Treatment.* Southwest Hydrology, January/February 2006.

Palmer, Eric Tyler. 2012. *Nitrate and Phosphate Removal through an Optimized Bioretention System.* Thesis. Washington State University, 2012.

Pitt, Robert, Ph.D., P.E., BCEE, D.WRE, and Shirley E. Clark, Ph.D., P.E., D.WRE. 2010. *Evaluation of Biofiltration Media for Engineered Natural Treatment Systems*.

Taylor, Andre, and Tony Wong. 2002. *Non-Structural Stormwater Quality Best Management Practices – A Literature Review of their Value and Life-Cycle Costs. Cooperation Research Centre for Catchment Hydrology*. Technical Report 02/13.

United States Environmental Protection Agency (USEPA) Region 9. 2012. DRAFT: Malibu Creek & Lagoon TMDL for Sedimentation and Nutrients to Address Benthic Community Impairments. Available at http://www.epa.gov/region9/water/tmdl/pdf/EpaMalibuCrkLagoonTMDL2012-12-12MainReport.pdf.

United States Environmental Protection Agency (USEPA) Region 9. 2012. DRAFT: Ventura River Reaches 3 and 4 Total Maximum Daily Loads for Pumping & Water Diversion-Related Water Quality Impairments. Available at http://www.epa.gov/region9/water/tmdl/pdf/ventura-river-reaches3-4_tmdl.pdf.

University of New Hampshire Stormwater Center (UNHSC). 2012. *Biennial Report*. University of New Hampshire.

CITY OF
AGOURA HILLS

"Gateway to the Santa Monica Mountains National Recreation Area"

January 16, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

RE: Proposed Malibu Creek TMDLs

Dear Ms. Lin:

The City of Agoura Hills wishes to express its concern for the proposed revision of Total Maximum Daily Loads (TMDLs) in the Malibu Creek Watershed. In order to avoid repetition, the City of Agoura Hills wishes to echo the points made in the various letters submitted by the County of Los Angeles, Las Virgenes Water District, and our Malibu Creek Watershed partners.

Cities, homeowners and businesses in the region stand to be adversely affected if the proposed new standards are rushed into place without a proper scientific vetting. As a community, Agoura Hills has made extensive investments in improving conditions in Malibu Creek and its tributaries. Through changes in building codes to control runoff, trash filtering, oil capture through more frequent street sweeping and monthly oil collections, as well as significant investments made by all the region's sewer service ratepayers, we continue to fulfill the mission of a community engaged in the stewardship of the watershed. Many of these activities are being done as a result of the 2003 Malibu Creek Nutrient TMDL and actions of the Los Angeles Regional Water Quality Control Board.

Given the significant investments in these measures, along with others such as the recently adopted Los Angeles County MS4 permit, we request that the EPA take a more deliberate approach to the placement of any more stringent standards for the creek. The reasons are many; among them are:

- No assurances that tighter standards will produce the desired effect, specifically the elimination of algae from Malibu Creek. **Comment 7-1**
- Malibu Creek has unusual characteristics that do not integrate well with a "one size fits all" approach to stream regulation. Its salinity and native nutrient levels require a specific and scientific approach to its chemistry. **Comment 7-2**

30001 Ladyface Court, Agoura Hills, CA 91301-1335 • Telephone (818) 597-7300 • Fax (818) 597-7352
e-mail: ci.agoura-hills.ca.us

- The proposed TMDL has not been given an appropriate amount of time for evaluation. It was released for public review on December 12. 2012 and the comment deadline is January 23, 2013. Under normal circumstances, that is a short time frame for in-depth analysis of a complex document, but given the intervening holiday period it is unusually brief, and much of the review period occurred at a time when elected bodies do not meet and staff vacations are at a peak. The short time frame suggests a rush to judgment and the lack of a prudent period for public review. **Comment 7-3**

If adopted as proposed, the TMDLs may result in additional financial and administrative burdens to this city and to the constituents we mutually serve, with no assurances that these measures will be effective. At a time when the economy challenges each governmental entity to be prudent users of public funds, we believe this proposal carries great risk with no guarantee of a tangible public benefit.

For these reasons and others, we respectfully request that the EPA forego the placement of the proposed TMDLs, allow the 2003 standard to demonstrate its effects and that fully vetted scientific standards be applied to the unique traits of Malibu Creek before any additional corrective measures are adopted.

Sincerely,

DENIS WEBER
Mayor

cc: City Council
City Manager

Heal the Bay

1444 9th Street
Santa Monica CA 90401

ph 310 451 1500
fax 310 496 1902

info@healthebay.org
www.healthebay.org

January 25, 2013

Cindy Lin
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Via email: lin.cindy@epa.gov

RE: Comments on the Draft Total Maximum Daily Loads (TMDLs) for Sedimentation and Nutrients to address Benthic Community Impairments in Malibu Creek and Lagoon

Dear Dr. Lin:

On behalf of Heal the Bay, a non-profit environmental organization with over 12,000 members dedicated to making the Santa Monica Bay and Southern California coastal waters and watersheds safe and healthy for people and local ecosystems, we submit the following comments on the Draft Total Maximum Daily Loads (TMDLs) for Sedimentation and Nutrients to address Benthic Community Impairments in Malibu Creek and Lagoon ("Draft TMDL" or "TMDL").

Heal the Bay has been actively working in the Malibu Creek Watershed since 1998. During this period we have collected extensive data showing that Malibu Creek and many of its tributaries are impaired for numerous parameters including benthic macroinvertebrates and greatly in need of protection and improvement. Heal the Bay's Stream Team has collected high quality water quality data since 1998 and continues in this effort today. Our data show trends of high levels of nutrients as well as extensive algal cover, creating a poor environment for aquatic life. Further, we find that benthic macroinvertebrate communities are impaired, particularly in areas impacted by development. Given the degradation in Malibu Creek, Lagoon, and tributaries, it is imperative that nutrient levels and sedimentation are lowered in order to improve the biological communities and maintain a healthy watershed. We are supportive of this TMDL in its efforts to reduce nutrient levels and sedimentation to improve the biological community.

We strongly support the proposed nutrient limits for total nitrogen (TN) and phosphorus (TP) and reduction in sedimentation. However, we are concerned that an alternative limit for TP in areas draining the Modelo formation will lead to further degradation and impairment in downstream areas and urge EPA to remove this limit. We also urge EPA to strengthen targets for benthic community health that are proposed for Malibu Creek and Lagoon. The targets for benthic macroinvertebrate community should be similar to what is found in reference sites, and we propose a target SC-IBI score of 60. Further, we also would like a higher target set for a healthy benthic community in Malibu Lagoon. The current target of 35 species in 15 years is too low. Similar estuaries in the area have higher species richness. We propose a target of 42 species in 15 years, which incorporates an additional margin of safety. Because the IBI and a

Heal the Bay
1444 9th Street
Santa Monica CA 90401
ph 310 451 1500
fax 310 496 1902
info@healthebay.org
www.healthebay.org

single species number do not take into account invasive species, we would like an additional numeric target to be included that addresses invasive species. A healthy benthic community will be free of invasive species. We propose the inclusion of a WLA/LA of zero invasive exotic species. These comments and others are described in more detail below.

1. **There is a clear need to lower total nitrogen concentrations in-stream based on high algal cover in Malibu Creek, Lagoon, and tributaries as well as low nitrogen levels in reference sites. The limits for total nitrogen set in the 2003 EPA nutrient TMDL for Malibu Creek Watershed are not being met consistently and do not represent background levels as claimed in the 2003 TMDL. Even in areas where the limits are being met, we see algal impairment. We support the proposed total nitrogen levels in the current draft TMDL of 0.6 mg/L in the summer and 1.0 mg/L in the winter.** Comment 8-1

   Algal cover is a clear problem in Malibu Creek and its tributaries. Algal growth is promoted by excess nutrients, which are contributed by urban runoff, agriculture, and wastewater discharge. From 2000 to 2004, Heal the Bay staff and volunteers surveyed and mapped algae along 70 miles of stream in the watershed. Heal the Bay's Stream Team also measures algal cover monthly at 12 sites in the Santa Monica Mountains (from 1998-current). We find evidence of high levels of algae in Malibu Creek and tributaries. Specifically, a survey in Malibu Creek with seasonal follow-up surveys from 2000-2004 revealed that 69% of Malibu Creek had greater than 50% algal cover (of 9.8 miles mapped). The monthly data show that benthic algal cover is lowest at our reference sites (upstream of development and downstream of open space) and highest at outlet sites (downstream of development and point sources). Using the Regional Board threshold for algal nuisance of 30% algal cover over 10% of the time[1], we find that all our outlet, middle watershed, and over 80% of our reference sites are impacted by algae. Using a more conservative threshold of 50% algal cover for over 50% of the time, we find that no reference sites are impacted, over 40% of middle sites are impacted, and over 60% of outlet sites are impacted.

   Heal the Bay studied threshold values for nutrients and algal cover in Malibu Creek using an empirical reference site approach and found that "[p]eriphyton cover exceeded nuisance levels (i.e. 30% cover) whenever average nitrate concentration was greater than 0.1 mg/l or average phosphate concentration was greater than about 0.15 mg/l." [2] Heal the Bay's Stream Team has also monitored nutrient levels monthly since 1998. Examining data from 1998-2010, we find that our eight reference sites had an average dry season nitrate concentration of 0.06 mg/L and wet season concentration of 0.09 mg/L. These values are much lower than the 2003 TMDL limits of 1.0 mg/L Total Nitrogen (TN) in the summer and 8.0 mg/L TN in the winter. We do acknowledge that we measure only inorganic nitrogen as nitrate and that TN levels will be higher, however,

[1] USEPA (United States Environmental Protection Agency). 2003. Total Maximum Daily Loads for Nutrients Malibu Creek Watershed. U.S. Environmental Protection Agency, Region 9, San Francisco, CA. http://www.epa.gov/region9/water/tmdl/malibu/final_nutrients.pdf .
[2] Luce, S. & Abramson, M. 2005. Periphyton and Nutrients in Malibu Creek. A Heal the Bay Report: available from Heal the Bay.

Heal the Bay
1444 9th Street
Santa Monica CA 90401
ph 310 451 1500
fax 310 496 1902
info@healthebay.org
www.healthebay.org

still likely much lower than the TN WLAs from the 2003 Nutrient TMDL, particularly the winter levels. At our seven outlet sites, we find that the average dry season nitrate concentration was 1.21 mg/L and 2.29 mg/L in the winter. Nutrient levels are clearly elevated in the middle and lower watershed due to inputs from development, stormwater, and discharge from Tapia Water Reclamation Facility in the winter. Many sites that we monitor do not meet the 2003 TN limits, which is not a big surprise given the lack of TMDL implementation efforts. Because we monitor nitrate and not TN, the exceedance rates are conservative and most likely, higher. We find that nitrogen levels are not being met in Malibu Creek main stem and tributaries up to 100% of the time (data from 1998-2010). Las Virgenes Creek tributary has especially high exceedance rates in the dry season. We see variation in exceedances of nitrogen at different sites but we consistently see high levels of algae throughout the watershed. Further, some sites that we monitor never exceed the 2003 TN TMDL limits in the dry and wet seasons, yet still show high algal cover. For instance, based on our monthly data from 1998-2010, Site 12 in upper Malibu Creek and Site 17 in Triunfo Creek never exceeded nitrate levels of 1.0 mg/L in the dry season or 8.0 mg/L in the wet season. However, Site 12 had an average of 85% benthic algal cover in the dry season and 70% cover in the wet season. Site 17 averaged 68% benthic algal coverage in the dry season and 46% in the west season. Both sites had less than 10% floating algal cover in all seasons. Despite being in compliance with the 2003 TMDL nitrogen limits, there is still an algal problem, indicating that the current nutrient levels are too high and need to be lowered.

In addition to data collected by Heal the Bay, other scientific studies show that very low levels of nutrients are necessary to protect aquatic life, providing further justification for the proposed lower TN limits. The targets for nitrogen in the 2003 Malibu Creek Watershed Nutrients TMDL are inadequate to protect aquatic life. For instance, USEPA recommends CWA section 304(a) nutrient criteria specific to the Los Angeles Region (Ecoregion III) of 0.38 mg/l total nitrogen and 0.022 mg/l total phosphorus for protection of aquatic life and recreation uses. [3] Dodds and Welch (2000)[4] propose threshold values of 1.5 mg/L TN and 0.075 mg/L TP to distinguish between streams that are mesotrophic and those that are eutrophic. This implies that levels lower than 1.5 mg/L TN and 0.075 mg/L P are necessary to prevent excessive algal growth and conditions that are detrimental to aquatic life, such as low levels of dissolved oxygen and poor habitat. The proposed TN levels of 0.6 mg/L in the summer and 1.0 mg/L in the winter will promote conditions that are protective of aquatic life and beneficial uses.

[3] USEPA, Ambient Water Quality Criteria Recommendations: Rivers and Streams in Nutrient Ecoregion III (2000) (EPA 822-B-00-016).

[4] Dodds, W.K. & Welch, E.G. 2000. Establishing nutrient criteria in streams. *Journal of the North American Benthological Society* 19: 186-196.

Heal the Bay
1444 9th Street
Santa Monica CA 90401
ph 310 451 1500
fax 310 496 1902
info@healthebay.org
www.healthebay.org

2. **We support the proposed Total Phosphorous (TP) limit of 0.1 mg/L throughout the year. We urge caution in the proposed alternative limit for TP in areas draining the Modelo formation.** Comment 8-2

Low concentrations of TP can contribute to algal cover and algal nuisance. Levels much lower than 0.1 mg/L are known to impact stream algal levels. As described in the previous section, USEPA recommends a level of 0.022 mg/L total phosphorus for protection of aquatic life and recreation uses [5] and Dodds and Welch (2000)[6] propose a threshold value of 0.075 mg/L TP for eutrophic conditions. The proposed limit for TP is already above a level that may promote algal growth and we are concerned that any additional relaxation of this limit will lead to further degradation and high algal cover in those areas. We acknowledge that for sites draining the Modelo formation, there are some natural sources of phosphate but we urge extreme caution in creating an alternative limit for these sites specifically. In addition, we are concerned about impacts to all downstream sites that are not necessarily in the Modelo formation. What does the EPA plan to do to ensure that WLAs are met in downstream reaches with lower limits?

3. **We urge EPA to strengthen numeric targets for benthic community health for Malibu Creek, Lagoon, and tributaries and include an additional numeric target of zero for invasive species.** Comment 8-3

The biological targets that are set in the TMDL are too low and will not promote a high quality benthic community. The proposed SC-IBI score of a median of 40 or better over 4 years only requires that streams be in "fair" condition. Because the TMDL took a reference-based approach to setting nutrient limits, we believe that a similar approach should be taken to set biological numeric targets. Heal the Bay's data on SC-IBI scores shows that the average score of our six reference sites is 62, in the "good" range. If we are more conservative and take the average median score of the reference site data used by EPA in Figure 8-3 of the TMDL, we get a similar score of 59. Thus, we recommend a numeric limit of 60 for a target SC-IBI score. Reference sites in and near the watershed have healthy biological communities and all sites should be put on track for attaining the same biological community structure.

We also urge EPA to increase the species target for the Malibu Lagoon. While there is not one perfectly comparable reference lagoon, we do see some similar lagoons in southern California that have higher species numbers and Malibu should be no exception. For instance, Tijuana Estuary in Imperial Beach, CA has 133 species of invertebrates[7], and Mugu Lagoon in Ventura

---

[5] USEPA, Ambient Water Quality Criteria Recommendations: Rivers and Streams in Nutrient Ecoregion III (2000) (EPA 822-B-00-016).
[6] Dodds, W.K. & Welch, E.G. 2000. Establishing nutrient criteria in streams. *Journal of the North American Benthological Society* 19: 186-196.
[7] Zedler, J.B. et al. 1992. The ecology of Tijuana Estuary, California: a National Estuarine Research Reserve. NOAA Office of Coastal Resource Management, Washington, D.C.

Heal the Bay
1444 9th Street
Santa Monica CA 90401
ph 310 451 1500
fax 310 496 1902
info@healthebay.org
www.healthebay.org

county has 43 - 46 species of benthic macroinvertebrates [8, 9]. Even some smaller estuaries that are highly impacted are able to maintain high species diversity such as San Dieguito estuary[10] and Agua Hedionda[11] with 42 and 76-143 species of benthic macroinvertebrates, respectively. Especially given the comprehensive restoration of Malibu Lagoon, we should set our biological target higher than proposed for the Lagoon. Therefore, based on species numbers from similar estuaries and an additional margin of safety of 20%, we propose a target of 42 benthic macroinvertebrate species in 15 years in Malibu Lagoon.

While we support EPA's decision to include a species diversity target, we are concerned that the critical issue of species composition and whether a species is native or non-native remains unaddressed in the proposed TMDL. We hope that the Lagoon will be home to a functionally and taxonomically diverse suite of *native* species and not just contain 35 species of any type. The SC-IBI score also does not take into account whether species are native or invasive. To avoid a situation where Malibu creek or Lagoon meets its biological target number but is dominated by invasive species, we request that an additional numeric target be included that addresses invasive species. A healthy benthic community will be free of invasive species, and we propose the inclusion of a WLA/LA of zero for invasive exotic species. A precedent for setting a numeric target for invasive species comes from the Ballona Creek Wetlands TMDL, where a target of zero was set for highly or moderately invasive vegetation and a target of 10% cover was set for vegetation rated as "low" in terms of invasiveness. [12] The Malibu Creek Watershed is known to contain two highly invasive benthic macroinvertebrate species, the New Zealand mudsnail and the red swamp crayfish. In order to promote healthy benthic biological communities, we must keep invasive species out and set a strong target of zero invasive aquatic benthic macroinvertebrate species.

4. **The reference sites used in the TMDL analyses provide a good indication of background levels and are the best available.** Comment 8-4

We support the sites that were chosen and used by EPA in establishing reference or background levels for nutrient concentrations as well as for comparisons of benthic communities. It is important to select reference sites that are not impacted by development or urbanization. Further, is also important to select sites that may have natural sources of nutrients. EPA succeeded in both of these tasks. Two sites were used as reference that are clearly in the Modelo geologic formation and which are affected by natural sources of phosphate and other inputs, Las Virgenes Creek

[8] Onuf, C.P. 1987. The ecology of Mugu Lagoon, California: an estuarine profile. U.S. Fish and Wildlife Service Biological Reports 85 (7.15), Washington, D.C.
[9] Peterson, C.H. 1975. Stability of species and of community for the benthos of two lagoons. *Ecology* 56: 958-965.
[10] http://ceres.ca.gov/wetlands/geo_info/so_cal/san_dieguito.html
[11] http://ceres.ca.gov/wetlands/geo_info/so_cal/agua_hedionda.html
[12] USEPA. 2012. Ballona Creek Wetlands Total Maximum Daily Loads fir Sediment and Invasive Exotic Vegetation. U.S. Environmental Protection Agency, Region 9, San Francisco, CA. http://www.epa.gov/region9/water/tmdl/ballona/BallonaCreekWetlandsTMDL-final.pdf

Heal the Bay
1444 9th Street
Santa Monica CA 90401
ph 310 451 1500
fax 310 496 1902
info@healthebay.org
www.healthebay.org

(LV-9) and upper Cheeseboro Creek (CH-6). Both these sites are also upstream of developed areas and primarily drain open space. Heal the Bay monitors these sites and we find the biological communities to be healthy, despite being in the Modelo formation. Site CH-6 has a median SC-IBI score of 54, while site LV-9 has a median SC-IBI score of 41. This puts both sites in the "fair" range. While slightly lower than our other reference sites, these scores do not indicate severe impacts of the Modelo formation on biological communities. Their biological similarity with other reference sites (as shown in TMDL Figure 8-3) and clear distinction from main stem sites, indicates that they are good reference sites and that good biology is attainable even in sites draining the Modelo formation.

5. Additional Concerns

<u>Sediment Load Reduction</u>

We are supportive of reducing sediment loads in Malibu Creek and tributaries to benefit aquatic life. In the TMDL, it is unclear whether a 38% reduction in sediment will truly result in meeting benthic community targets. Does meeting this target result in attainment of natural (pre-development) sediment yield? EPA should provide more support for this targeted reduction. Further, a potential contributor to sediment loading is from construction projects, which should be addressed in the TMDL and given a WLA. Comment 8-5

<u>Onsite Wastewater Treatment Systems (Septics)</u>

In general, we are supportive of nutrient load allocations for septic systems of 2.49 mg/L summer and 6.75 mg/L winter TN and 0.99 mg/L TP. While nutrient reduction to this level may not be feasible prior to leachfield dispersal given the technological constraints of current advanced treatment systems, treatment that occurs in the vadose zone, plus the fact that these allocations are in-stream targets add to the feasibility of meeting these limits.

The State Water Resources Control Board's recently adopted Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy) requires the Regional Board to adopt a TMDL implementation plan for Malibu Creek before 2016 (OWTS Policy Attachment 2 Page 49). USEPA should help shape this plan by providing more detail through its implementation recommendations in the TMDL. The recommendations should be even more stringent than those outlined in Tier 3 of the OWTS Policy. For instance, EPA should recommend a sanitary survey to count, identify, map, and assess the condition of septic systems within 600 feet of Malibu Creek and its tributaries. Existing monitoring data and observations, such as that collected by Sikich et al. (2013)[13] can be used to

[13] Sikich, S., Pease, K., Diringer, S., Abramson, M., Gold, M., & Luce, S. 2013. Malibu Creek Watershed: An Ecosystem on the Brink. Heal the Bay, Santa Monica, CA, in press.

Heal the Bay

1444 9th Street
Santa Monica CA 90401

ph 310 451 1500
fax 310 496 1902

info@healthebay.org
www.healthebay.org

aid in this effort. Clusters of septic systems that do not utilize advanced treatment may be identified to aid in the implementation of the TMDL. All new and replaced systems within 600 feet of Malibu Creek and its tributaries should be required to include advanced treatment to a reduction of 15 mg/L of nitrogen in effluent, and meet the other supplemental treatment requirements of the Septic Policy, effective immediately after adoption of the TMDL. The TMDL should also recommend a schedule that requires compliance with the load allocations as soon as practicable, given the watershed-specific circumstances. **Comment 8-6**

TMDL and Stormwater Permit (MS4) Recommendation

We recommend that EPA and the Regional Board work to ensure that the nutrient limits in this TMDL apply in the compliance determination of the MS4 permit for the Malibu Creek Nutrient TMDL, which states "For the Malibu Creek Nutrient TMDL established by USEPA in 2003, in no case shall the time schedule to achieve the final numeric WLAs exceed five years from the effective date of this Order." **Comment 8-7**

***

In summary, we strongly support the proposed limits for nutrients to address high levels of algal cover and impaired benthic macroinvertebrate communities in the Malibu Creek Watershed. We support reduction in sedimentation to natural background levels as well to promote suitable habitat for benthic macroinvertebrates. The TMDL makes clear links between excess nutrients, sedimentation, and biological impairments. Natural sources are clearly not a major cause of biological impairment since we document healthy benthic communities in areas that are in the Modelo formation and are undeveloped.

We urge EPA to establish higher numeric targets for biological health of Malibu Creek, its tributaries, and Malibu Lagoon. The reference condition approach was taken to establish nutrient and sediment limits, and we urge EPA to also use reference sites to establish higher biological targets. We also request the inclusion of a numeric target of zero for invasive aquatic species. Strict nutrient and sediment inputs to the Malibu Creek Watershed along with high numeric targets for biological communities will help to fully restore the beneficial uses of the Malibu Creek Watershed. **Comment 8-8**

Sincerely,

Katherine M. Pease, PhD
Watershed Scientist

W. Susie Santilena, MS, EIT
Environmental Engineer

Kirsten James, MESM
Water Quality Director

GAIL FARBER, Director

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
http://dpw.lacounty.gov

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

January 24, 2013

IN REPLY PLEASE
REFER TO FILE: WM-9

Dr. Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Boulevard, Suite 1460
Los Angeles, CA 90017

Dear Dr. Lin:

COMMENT LETTER – MALIBU CREEK AND LAGOON SEDIMENTATION AND BENTHIC EFFECTS TOTAL MAXIMUM DAILY LOAD

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 Malibu Creek and Lagoon Total Maximum Daily Load for sedimentation and nutrients to address benthic community impairments. 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 or your staff may contact Ms. Angela George at (626) 458-4325 or ageorge@dpw.lacounty.gov.

Very truly yours,

GAIL FARBER
Director of Public Works

Gary Hildebrand

GARY HILDEBRAND
Assistant Deputy Director
Watershed Management Division

GA:jtz
P:\wmpub\Secretarial\2013 Documents\Letter\Comment Malibu Creek Sediment TMDL.docx\C13021

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 Malibu Creek and Lagoon TMDL for Sedimentation and Nutrients to address Benthic Impairments

1. The effects of wildfire and invasive species should not be downplayed

Comment 9-1

Given the historic recurrence of wildfires in Malibu Creek watershed[1] and the documented ecological impact of wildfires, we respectfully disagree with staff's assertion that wildfires are not a significant contributing factor to benthic community impairments in Malibu Creek and Lagoon. The TMDL does not provide evidence to substantiate eliminating wildfires as a significant contributing factor. Based on our research, wildfires may be a significant cause of physical channel alterations and biological impairments observed in Malibu Creek and Lagoon. Dramatic increases in flow and sediment delivery following wildfires have been documented in literatures[2,3]. Wildfires are often followed by sediment-laden flows or mudflows, especially in high gradient streams such as Malibu Creek, and can lead to habitat destruction[4,5] as well as increased pollutant loading into streams[6,7]. Wildfires are not new but rather very common in Los Angeles Basin. For example, the 2009 Station Fire in the San Gabriel Mountains sent more than 2 million cubic yards of sediment into several debris basins during the subsequent rain season. Other wildfires have had similar effect over the years.

The TMDL also inappropriately downplays the impact invasive species have on the biological community. Invasive species, such as the New Zealand Mud Snail, have been a major concern in Malibu Creek, and their negative impact on biological communities is well documented[8]. The TMDL maintains that invasive species are not a primary stressor, because Malibu Creek was listed for biological impairment before the Mud Snail invasion. We do not believe that this is sufficient justification to exclude invasive species as a primary stressor because, although they may not be the primary cause of the original impairment, the presence of invasive species undeniably harms the overall health of the biological community in the watershed.

[1] Wildfire occurrences in Malibu Creek since 1950s is presented in Appendix B-3 of the staff report.
[2] Ice et al (2004): Effects of wildfire on soils and watershed processes.
[3] Pierson et al: Impacts of fire on hydrology and erosion in steep mountain.
[4] Rinne and Miller: Wildfire in the southwestern USA: Effects on rare, native fishes, and their habitats.
[5] Bond and Bradley: Impacts of the 2003 southern California wildfires on endangered species.
[6] Bitner et al (Los Alamos National Laboratory): Review of wildfire effects on chemical water quality.
[7] Burke et a (2011): Dynamics of pre- and post-fire pollutant loads in urban fringe watershed.
[8] See http://mudsnails.com/; and http://www.invasivespeciesinfo.gov/

Therefore, a TMDL that is intended to address benthic impairment in Malibu Creek and Lagoon must adequately address the impact of wildfires and invasive species, which are primary contributing factors to the biological impairment.

2. The proposed nutrient targets are unattainable and not supported by evidence

We are very concerned about the nutrient targets of 0.6 mg/L total nitrogen and 0.1 mg/L total phosphorus being proposed by the TMDL. These targets are extremely low and cannot be achieved even at natural sites. Moreover, the TMDL's analysis does not provide sufficient evidence to justify the use of nutrient targets and allocations that are lower than those used in the 2003 Malibu Creek Nutrient TMDL. It is our understanding that the Regional Water Board is in the process of developing an implementation plan for the Malibu Creek Nutrient TMDL, and revisions to the targets and allocations, if warranted, could be considered at that time. We request that the nutrient targets and allocations in the current TMDL be consistent with the existing Malibu Nutrient TMDL. **Comment 9-2**

If EPA insists on revising the nutrient targets now, the new targets should be no more stringent than the concentrations measured at reference sites in the Malibu Creek watershed. Page 10-10 of the draft staff report states:

> "*The NNE framework makes it clear that the appropriate nutrient targets cannot be less than natural background. …the natural background concentration for total nitrogen in the watershed is below 0.67 mg/L outside of the Modelo formation and approximately 1.3 mg/L within the Modelo formation, both greater than the NNE target. …a natural background concentration of 0.14 mg/L of total phosphorus outside of the Modelo formation and 0.6 mg/L with the Modelo formation, both well in excess of the target yielded by the NNE analysis. …The information on natural background concentrations suggests that attaining the NNE target of 150 mg/m^2 chlorophyll-a is likely not feasible in this watershed*."

Also, page 7-23 of the draft staff report states:

> *"The median total nitrogen at a [reference] station (draining Modelo formation) is 1.33 mg/L in summer and 1.73 mg/L in winter.*"

In line with the above findings, the nutrient targets for Malibu Creek watershed should not be less than the following background concentrations.

Season	*Areas draining Modelo formation*		*Areas draining non-Modelo formation*	
	TN (mg/L)	TP (mg/L)	TN (mg/L)	TP (mg/L)
Summer	1.30	0.60	0.67	0.14
Winter	1.73	0.60	1.00	0.14

Further, the nutrient waste load allocations (WLAs) should be expressed as mass instead of concentration. Concentration-based allocations are not only infeasible to address using available best management practices, but they are also counter to the current trend towards reducing stormwater pollution through runoff volume reduction. Stormwater dischargers are increasingly encouraged to reduce pollutant loading by infiltrating or capturing and reusing stormwater runoff. While a mass-based WLA is consistent with this approach, a concentration-based one is not. Moreover, it is the mass of total nutrient input, as opposed to instantaneous concentrations, that matters when it comes to reducing algal coverage and protecting beneficial uses.

Lastly, the targets for benthic algal coverage should be set as an alternative target to the TN and TP targets, not as a target to be achieved in conjunction with TN and TP targets. These targets should be set based on observations at reference sites. The 30 percent and 60 percent thresholds for floating and mat algal coverage, respectively, are not achievable in Malibu Creek watershed due to its unique natural geology that contributes to elevated algal coverage.

3. The linkage between sedimentation and benthic community impairments is not supported by evidence Comment 9-3

The TMDL analysis provides little evidence to link sedimentation and biological impairment in Malibu Creek; yet, the TMDL identifies sedimentation as the primary cause of the biological impairment and sets allocations based on sediment load. While the IBI scores (which are a measure of the biological health in the Creek) shows very poor to poor conditions (see Figure 8-3 of staff report), the physical habitat scores (which are a measure of sedimentation and other physical conditions in the Creek) are reported to be in the marginal to optimal range (see Figure 8-22 of staff report), which are generally considered acceptable habitat condition. No poor physical habitat scores have been reported for Malibu Creek. This appears to indicate the absence of correlation between IBI and habitat scores; and, thus, sedimentation as a less likely cause of biological impairment in the Creek. The TMDL's conclusion that sedimentation is the primary cause of biological impairment is, therefore, unsupported by evidence. In the absence of a substantiated linkage, the TMDL should not establish allocations for sedimentation.

Further, the TMDL erroneously assumes that more sediment loading comes from urban discharges than from undeveloped areas. Though urbanization tends to increase flow, it does not necessarily increase sediment load in stormdrain discharges. On the contrary, discharges from urbanized areas typically contain less sediment than that from natural areas. This is why in urbanized watersheds, stream bank stabilization controls such as concrete- or riprap-reinforced banks are commonly constructed to protect against the erosive effects of sediment-hungry flows. By assigning sediment waste load allocations to MS4 discharges, the TMDL may inadvertently exacerbate hydromodification by further decreasing the amount of sediment in MS4 discharges, which makes the water more "sediment-hungry" and more erosive. The TMDL should be revised to remove the sediment waste load allocations assigned to MS4 discharges.

4. The impact from State Parks and National Forest lands should be recognized

Comment 9-4

The California Department of Parks and Recreation has land management and ownership responsibility not only for the Malibu Lagoon but also for the State Parks in Santa Monica Mountains that drains to Malibu Creek. The land area under state jurisdiction accounts for about 8.5 percent of the Malibu Creek watershed. Additionally, about 10 percent of the watershed is under the jurisdiction of the National Forest Service. A map that shows the different jurisdictions within the watershed is attached.

Park and forest land management involve various activities including road or trail construction and maintenance, recreational activities, and timber management. As described in the "*Waiver of Waste Discharge Requirements for National Forest System Lands in California*"[9], these activities are known to cause significant sediment and pollutant delivery to streams as well as removal of riparian vegetation resulting in water temperature and habitat changes. The County and cities have no control over the state and federal lands. Therefore, the impact of park and forest management activities on the Malibu Creek should be recognized in the TMDL, and the State and National Parks/Forest Services should be named responsible parties. Also, Figure 4-1 in the draft staff report should be revised to reflect the jurisdictional areas as indicated in the attached map.

5. The TMDL should only use reference sites within Malibu Creek Watershed

Comment 9-5

The TMDL uses Lachusa Creek and Solstice Creek as reference sites for assessing the water quality and biological conditions in Malibu Creek. We believe these are not appropriate reference sites because they are located outside of Malibu Creek

[9] http://www.waterboards.ca.gov/board_info/agendas/2011/dec/120611_17usfs_waiver.pdf

Watershed, and their geologic characteristics differ significantly from the Malibu Creek Watershed. Malibu Creek Watershed is unique in its geology. Much of the northern headwaters of the watershed drain areas primarily dominated by the *Monterey or Modelo formation*, a natural petroleum-bearing geologic formation (see Figure 4-4 of the draft staff report).

The impact of Modelo formation on water quality and aquatic life is well-documented[10,11]. This unique geologic formation is known to be associated with high levels of metals, nutrients, selenium, sulfate, total dissolved solids, and algae. It is also often characterized by poor benthic microinvertabrate and fish community. These effects have been observed in Malibu Creek and can be seen by comparing water quality and benthics data from undeveloped sites with Modelo formation (e.g., Cheseboro Creek) and non-Modelo formation (e.g., Cold Creek) as presented in Figures 7-18, 8-3, 8-6, and 8-9 of the draft staff report.

Given the clear evidence for the impact of Modelo formation on water quality and aquatic habitat throughout the Malibu Creek and its tributaries (except Cold Creek), the use of non-Modelo impacted sites (Lachusa and Solstice Creeks) from outside the watershed for reference is unjustified. The TMDL should be revised to use Cheseboro Creek and Upper Las Virgenes Creek as reference sites for all sites within the watershed, except for Cold Creek.

6. **The impact of Modelo Formation is not limited to areas within the Modelo Formation: It extends to downstream reaches** **Comment 9-6**

In analyzing the impact from Model formation, the draft staff report treats only sites within Modelo formation as Modelo-impacted sites (see Figures 7-14, 7-18, 8-9, and 8-10). In reality, though, all sites downstream of the Modelo formation, including MC-1, MC-12, MC-15, and the lagoon, are also influenced by the Modelo formation. Therefore, the TMDL's assessments and associated discussions should be revised accordingly. For example, the shaded area for the Modelo formation in Figures 8-9 and 8-10 should be revised to include MC-1, MC-12, MC-15, and TR-17.

7. **The TMDL should clarify the waterbodies being addressed** **Comment 9-7**

As stated in Section 2.2 and several places thereafter in the draft staff report (e.g., page 8-10, section 9.3), this TMDL appears to address only the main stem of Malibu Creek (downstream of Malibou Lake) and Malibu Lagoon in accordance with the

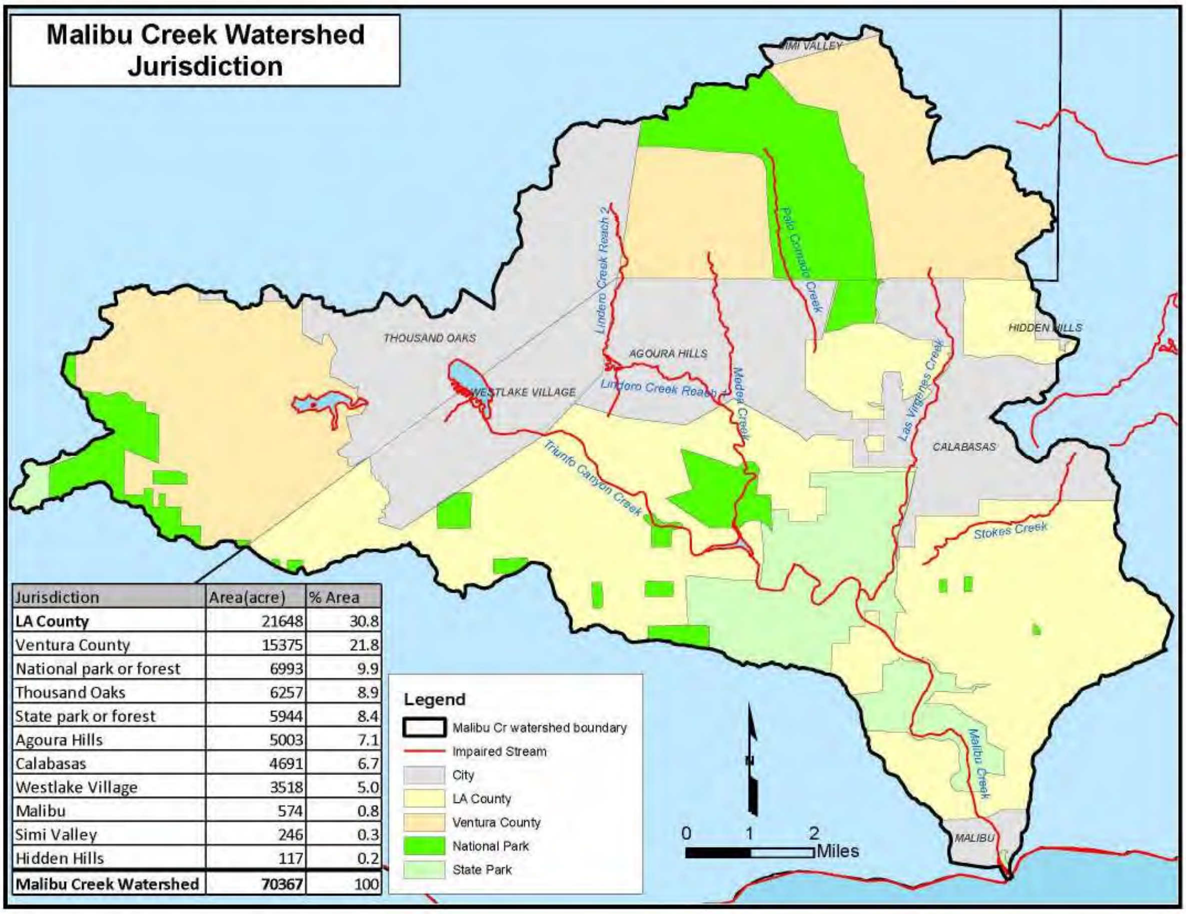
[10] USGS (2002): Hazardous trace elements in petroleum sources rocks – the Monterey Formation.
[11] LVMWD (2011): An analysis of the impacts of Modelo Formation on water quality and aquatic life in Malibu Creek Watershed.

requirements of the consent decree. The 2010 amendment to the consent decree removes the requirement to complete TMDLs for Malibu Creek tributaries at this time. On the other hand, some sections of the staff report (e.g. the TMDL allocations) appear to include tributaries. The TMDL should be revised to clearly and consistently identify which waterbodies are being addressed.

8. The TMDL should establish interim targets until adoption of the statewide biological objective policy Comment 9-8

The State Water Resources Control Board (State Water Board) is currently in the process of developing a statewide biological objective (bio-objective) policy[12], which is expected to be adopted in about a year. The criteria to be established in the bio-objective policy will affect all benthic community TMDLs in the state. To our knowledge, Malibu Creek benthic TMDL is the first of its kind in California. Given USEPA's obligation under the consent decree to develop this TMDL by March 2013, we understand this TMDL must be adopted prior to the adoption of the bio-objective policy. In the absence of biological criteria, however, the TMDL should only establish interim targets that guide management actions until the state policy is adopted. Upon the adoption of the state's policy, the TMDL should be reconsidered to set the proper final targets and allocations consistent with the state policy.

[12] http://www.waterboards.ca.gov/plans_policies/biological_objective.shtml



Jurisdiction	Area(acre)	% Area
LA County	21648	30.8
Ventura County	15375	21.8
National park or forest	6993	9.9
Thousand Oaks	6257	8.9
State park or forest	5944	8.4
Agoura Hills	5003	7.1
Calabasas	4691	6.7
Westlake Village	3518	5.0
Malibu	574	0.8
Simi Valley	246	0.3
Hidden Hills	117	0.2
Malibu Creek Watershed	**70367**	100

Figure: Jurisdictional Boundaries in Malibu Creek Watershed.

City of Hidden Hills

6165 Spring Valley Road • Hidden Hills, California 91302
(818) 888-9281 • Fax (818) 719-0083

January 22, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Boulevard, Suite 1460
Los Angeles, California 90017

Dear Ms. Lin:

The City of Hidden Hills wishes to express its concern for the proposed revision of Total Maximum Daily Loads (TMDLs) in the Malibu Creek Watershed.

Cities, homeowners and businesses in the region stand to be adversely affected if the proposed new standards are rushed into place without a proper scientific vetting.

As a community, we have been working on and continue to work on improving conditions in Malibu Creek and its tributaries. Through adoption of requirements to control runoff, more frequent street sweeping, and significant investments made by all the region's sewer service ratepayers, we continue to fulfill the mission of a community engaged in the stewardship of the watershed. Many of these activities are being done as a result of the 2003 Malibu Creek Nutrient TMDL and actions of the Los Angeles Regional Water Quality Control Board.

Given the significant investments in these measures, along with others such as the recently adopted Los Angeles County MS4 permit, we request that the EPA take a more deliberate approach to the placement of any more stringent standards for the creek. The reasons are many, among them being:

- No assurances that tighter standards will produce the desired effect, specifically the elimination of algae from Malibu Creek.
- Malibu Creek has unusual characteristics that do not integrate well with a "one size fits all" approach to stream regulation. Its salinity and native nutrient levels require a specific and scientific approach to its chemistry.

Comment 10-2 Comment 10-1

- The proposed TMDL has not been given an appropriate amount of time, for evaluation. It was released for public review on December 12, 2012 and the comment deadline is January 23, 2013. Under normal circumstances, that is a short time frame for in-depth analysis of a complex document. Given the intervening holiday period it is unusually brief, and much of the review period occurred at a time when elected bodies do not meet and staff vacations are at a peak. The short time frame suggests a rush to judgment and the lack of a prudent period for public review.

If adopted as proposed, the TMDLs may result in additional financial and administrative burdens to this City and to the constituents we mutually serve, with no assurances that these measures will be effective. At a time when the economy challenges each governmental entity to be prudent users of public funds, we believe this proposal carries great risk with no guarantee of a tangible public benefit.

We respectfully request that EPA forego the placement of the proposed TMDLs, allow the 2003 standard to demonstrate its effects, and apply fully vetted scientific standards to the unique traits of the Malibu Creek before any additional corrective measures are adopted.

Sincerely,

Stuart E. Siegel /cp

Stuart E. Siegel
Mayor

SES/dlg

Comment 10-3

City of Malibu

23825 Stuart Ranch Road · Malibu, California · 90265-4861
Phone (310) 456-2489 · Fax (310) 456-3356 · www.malibucity.org

January 25, 2013 *Sent via email to lin.cindy@epa.gov*

Cindy Lin
Water Division (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Boulevard, Suite 1460
Los Angeles, California 90017

Subject: City of Malibu's Comments on the Draft Malibu Creek and Lagoon TMDL for Sedimentation and Nutrients to address Benthic Community Impairments

Dear Dr. Lin:

The City of Malibu (City) has prepared this comment letter in response to the subject draft Total Maximum Daily Load (TMDL) document issued by the United States Environmental Protection Agency, Region 9 (USEPA) (hereinafter "draft TMDL"). We appreciate the effort USEPA has made to address water quality concerns regarding sedimentation and nutrients in connection with benthic community impairments in the Malibu Creek Watershed, California. The Malibu Creek watershed, the Creek itself, Malibu Lagoon and the surfzone in the vicinity of Surfrider Beach are vital resources in our community.

First and foremost, the City is concerned that certain sources of sedimentation and nutrients have been inaccurately characterized, and that the (waste) load allocations and associated recommendations are misdirected. The City requests that the draft TMDL be amended to (1) account for additional facts provided in this letter and, with respect to implementation recommendations, (2) emphasize the uncertainty in assumptions that the TMDL relies upon. Although we recognize the complex nature of the TMDL and the analysis that went into its development, the enclosed comments are focused on issues the City believes to remain unresolved. These first two requests establish the City's primary concerns and restate comments previously submitted to USEPA Region 9 in a letter dated May 3, 2010 (response to the April 12, 2010 solicitation of public comments on USEPA's proposal to amend the consent decree).

A. <u>Malibu Lagoon should be removed from this draft TMDL and should be moved to the Category 4B for 303(d) listings being addressed by an action other than a TMDL</u> Comment 11-1

The proposed new TMDL targets for the Malibu Lagoon for benthic macroinvertebrates, nutrients, and sediment should be removed from this draft TMDL, and the constituents listed for the Lagoon should be moved to Category 4B as being addressed by actions other than a TMDL. In 2008, the Los Angeles Regional Water Quality Control Board (RWQCB) recommended moving Malibu Lagoon to Category 4B because of the California Department of Parks and Recreation's (State Parks') then pending Malibu Lagoon Restoration project. However at that time, the State Water Resources Control Board (SWRCB) and USEPA rejected the recommendation as the project was too premature to justify the move. Based on the current extensive progress towards Malibu Lagoon restoration, the City's progressive wastewater management program (including pending construction of a Civic Center centralized wastewater treatment facility), and the City's strong commitment to preventing stormwater/runoff pollution through the construction of the Civic Center Stormwater Treatment Facility and Legacy Park, the City can better demonstrate that significant implementation measures are in place or are actively in progress. Therefore, the recommendation to move this action to Category 4B should now alleviate USEPA's initial hesitation. The move to Category 4B would eliminate the need for the proposed targets and allocations into the Lagoon.

Extraordinary circumstances and alternative actions need to be considered rather than imposing these new TMDL targets. Under a grant from the California State Coastal Conservancy, with participation of local non-profit organizations such as Heal the Bay, State Parks commenced the Malibu Lagoon Restoration Project in 2012. The disruption of the lagoon conditions caused by the construction activity will have long lasting effects for which municipal governments should not be held responsible. Conversely, since this project was intended to have overall long-term beneficial effects on the sedimentation rates and benthic macroinvertebrate communities in the lagoon and ecosystem, it would be prudent to address this 303(d) listed sediment impairment with a non-TMDL program, such as a study to determine the results of the Malibu Lagoon Restoration Project on sedimentation rates, nutrient cycling, and benthic macro invertebrate communities (such as the detailed long-term monitoring program for habitat, water quality during both open and closed lagoon mouth conditions, sediment quality, and lagoon topography/bathymetry studies included by the State as part of the Restoration project)[1].

As mentioned above, the City has committed to the construction of a centralized wastewater treatment facility for the Civic Center area surrounding Malibu Lagoon. This wastewater improvement effort, which will be completed in phases between 2015 and 2025, would eliminate the contribution of any harmful nutrients to the lower creek and Lagoon from all onsite wastewater treatment systems (herein referred to as OWDS to be consistent with EPA's chosen nomenclature). See also Additional Comments 5 and 6 in the letter.

The City (with generous State grant funding) has constructed the Civic Center Stormwater Treatment Facility in 2006 and the award winning Legacy Park in 2010. All of the runoff from the City's and Los Angeles County's municipal storm drain systems that would otherwise discharge to the Lagoon is diverted to these facilities. Together, these facilities have the ability to capture up to 8 acre feet of runoff and treat it through filtration and disinfection at a rate of 1,400 gallons per minute. Filtration has the dual benefit of reducing the sediment loading while simultaneously removing nutrients that would otherwise be conveyed with the sediments. Instead this treated water is stored until it is used for irrigation of Legacy Park and not discharged to the Creek or Lagoon. Only in limited instances is treated water discharged. Once again, it would be more prudent to

[1] California Coastal Commission Item w6a Staff Report 9/29/10 for 10/13/10 Hearing on Application 4-07-098. http://www.malibucity.org/index.cfm/fuseaction/DetailGroup/navid/550/cid/18117/

address this 303 (d) listed sediment impairment and eliminate the new nutrient targets with a program or mechanism other than a TMDL.

Since many macroinvertebrates have life cycles of a year or more and are relatively immobile, macroinvertebrate community structure generally is a function of past conditions in the specific waterbody[2]. It is then reasonable to assert that any past listing of the Malibu Lagoon for benthic community effects is based on conditions that may very well be very different now than 1998 (when the impairment was listed). Moreover, these conditions will have likely changed during and after the Lagoon Restoration project and construction of the City's wastewater treatment facility. It is clear that numerous issues and hurdles are imminent in implementation of the proposed TMDL. However, bear in mind that the draft TMDL is quite onerous in this tough economic climate, and these perceived impairments may be effectively mitigated through mechanisms other than a TMDL. There is no guarantee that the draft TMDL's proposed (waste) load allocations will achieve water quality standards for nutrients and sediment, let alone benthic macroinvertebrates.

B. **Malibu Creek sediment/siltation should be removed from this draft TMDL and should be moved to the Category 4B for 303(d) listings being addressed by an action other than a TMDL**

Comment 11-2

With respect to targets for Malibu Creek sediment/siltation in the TMDL, this listing should be addressed with a mechanism other than a TMDL and be moved to Category 4B. There are extraordinary circumstances that need to be considered. The Malibu Creek Watershed contains mostly undeveloped mountain areas, large acreage residential properties, and many natural streams reaches[3]. More than 75% of the Malibu Creek watershed is undeveloped land (open space) consisting primarily of chaparral, scrub, and woodlands, with smaller areas of grasslands and forests. Runoff from these areas contributes nutrients to the waterways in both particulate and soluble forms. Particulate forms generally predominate and are introduced through the erosion of soils that contain organic litter from the overlying vegetation[4]. As recognized by the two citations above, this watershed is highly *undeveloped.*

There is not sufficient information, and the City is not currently aware of any comprehensive studies in Malibu Creek, regarding sediment to demonstrate the sediment/siltation generated in the creek is of unnatural or even controllable sources. As a result, the scientific basis necessary to establish the water quality based controls through a TMDL is insufficient. In general, sediment loading is primarily due to natural sources from the steep and naturally erosive canyons and slopes in this relatively undisturbed watershed. Developed areas within this watershed are suburban and often very low-density, single family residences, and not massive-scale, large-acreage tract home construction projects that would cause sediment/siltation impairment.

---

[2] U.S Environmental Protection Agency (USEPA). 2002. Consolidated Assessment and Listing Methodology: Toward a Compendium of Best Practices. Using Biological Data as Indicators of Water Quality. Chapter 5.

[3] State Water Resources Control Board. 2006. California's Critical Coastal Areas: State of the CCAs Report.

[4] USEPA. 2003. Total Maximum Daily Loads for Nutrients Malibu Creek Watershed. Pg 29.

Rindge dam construction was completed in 1924. It took a mere 25 years (by 1950) to be filled with sediment- well before the development of this watershed, which began over a decade later in the late 1960s. Since the USACE has been studying that dam for years in anticipation of removing it, that agency is likely to have sediment loading information. Any information from that project and related studies should have been considered while developing the draft TMDL. However, there is no reference in the TMDL to any USACE work. In addition, the US Army Corps of Engineers (USACE) has been working with other area agencies on a project to remove the Rindge Dam in this creek. Doing so would release the historic sediments trapped behind the dam. The disruption of the creek conditions during and post project will have unknown and potentially long lasting effects for which municipal governments not participating in the project should not be held responsible. The City therefore requests that the USEPA consider addressing this alleged impairment in the Malibu Creek in a mechanism other than a TMDL.

Notwithstanding the above comments and recognizing the requirements of the consent decree governing this area, if the USEPA determines that a TMDL is still necessary and the USEPA cannot move the listings to Category 4B, the City provides the following Additional Comments on the draft TMDL:

1. General Evidentiary Concerns **Comment 11-3**

Some of the key assumptions and facts cited to support the current pollutant allocations are not supported by evidence. Throughout the draft TMDL, the analysis appears to weigh unsupported opinions greater than scientific data. For example, in choosing reference streams, the TMDL cites Heal the Bay's biologic analysis of Solstice Creek when it supports USEPA's choice to use Solstice Creek as a reference stream for biologic integrity (Section 8.1.3), but the TMDL discounts Solstice Creek nutrient data citing Heal the Bay's unsubstantiated interpretation that existing development disqualifies Solstice Creek as a reference stream for nutrients (p. 7-14; opinion regarding the occurrence and impact of a leaky septic system). A similar preference for non-peer reviewed Heal the Bay observations was used in the TMDL to disqualify upper Las Virgenes Creek as a reference stream for nutrients (p. 7-15; opinion regarding the presence and impact of unstable stream banks and illegal dump sites). The TMDL also lacks references to new studies and data developed since the 2003 Nutrient TMDL was created. The 2003 TMDL specifically identifies follow-up nutrient diffuser studies that were undertaken in 2002, with the expectation that the final results would be available in 2003, after the release of the 2003 TMDL. The 2003 TMDL specifically states the study was expected to provide more definitive data regarding the relationship between nutrients and algal impairment. This draft TMDL relies on revised interpretations of that old data, and does not utilize the outcomes of new data for support.

The draft TMDL also reached conclusions without considering which stressors are the predominate factors that cause low IBI scores or lower than expected numbers on inventories. Multiple factors play a role in ecological response. There remains significant scientific uncertainty as to whether natural conditions or anthropological factors govern attainability of the desired TMDL targets. The document lacks analysis of whether controllable actions would actually improve IBI scores.

2. Implementation Comment 11-4

The record for this draft TMDL does not appear to recognize the practical impacts of this TMDL and the significant economic impacts the targets assigned to each constituent will create. During the public workshop held on January 14, 2012, Region 9 staff suggested that responsible agencies should not be overly concerned about the practicability of attaining compliance with the new TMDL's water quality targets because ultimately the implementation plan will provide long timeframes for compliance. This point of view is simply naïve. Water quality targets for each constituent in an adopted TMDL are applied by RWQCB to many individual and general permits for specific discharges preceding the development of TMDL implementation plans. MS4 permittees must spend millions of dollars in attempts to comply with these targets, while the targets ultimately may prove to be unattainable. Thus, the prospect of a long-term TMDL implementation plan does not resolve the City's concerns about economic impacts and feasibility of the meeting the objectives.

3. Load Allocations For OWDS Should Not Be Expressed As Concentrations Comment 11-5

Concentration-based load allocations for nutrients from OWDS should be replaced by mass-based loadings. Concentration-based allocations create the impression that it is necessary for every OWDS in the watershed to produce the same exact level of effluent quality in order to protect aquatic life. In reality, individual OWDS actually contribute different nutrient mass loads to the receiving surface waters depending on site conditions, discharge quantity, effluent waste strength, and contaminant migration pathways. Risk-based onsite wastewater management would prioritize various OWDS type and use area categories for implementation of additional controls according to the categories' fractional mass load contributions. This is why the 2003 nutrient TMDL states that, "[t]he highest priority for implementation is to ensure that discharges from commercial septic systems do not cause nutrient discharges to surface waters, particularly in the Malibu Lagoon area." Ultimately, prioritization of various OWDS type and use area categories according to the degree of environmental risk and the cost effectiveness of nutrient load reductions is the only appropriate approach to implementation of additional control measures. Lastly, and perhaps most significant, is the fact that it's simply not technologically feasible for OWDS to achieve the concentration based load allocations shown in Table 10-5 of the draft TMDL.

4. OWDS Nutrient Mass Loading Estimates Are Flawed Comment 11-6

In 2002 the City issued comments on the draft nutrient TMDL (adopted in 2003) for Malibu Creek and Lagoon. The City endeavored to have the USEPA correct its source assessment for OWDS with respect to a number of erroneous assumptions made in the underlying technical study by Tetra Tech. The most problematic assumptions were concerning the locations, numbers, and types of OWDS in the Malibu Civic Center area (or in the Malibu Lagoon subwatershed). USEPA dismissed the City's comments, suggesting that when the City's risk assessment study was completed, the situation could be re-examined. While the current draft TMDL has acknowledged several pieces of new information, the fact remains that the influence of OWDS on surface water quality, as affected by their locations, numbers, and types, is not known to a level of accuracy that justifies the OWDS source identification (assessed nutrient loadings), nor the OWDS load allocations, incorporated in this draft TMDL.

In particular, the City continues to note the following critical deficiencies in the Tetra Tech 2002 OWDS source assessment which forms the basis for this draft TMDL's OWDS load allocations.

a. The total number of OWDS in the watershed and in the City should have been updated in accordance with *Risk Assessment of Decentralized Wastewater Treatment Systems in High Priority Areas in the City of Malibu, California* (Stone Environmental, 2004).

b. Wastewater flows from existing OWDS in the City should have been updated in accordance with *Hydrology Study of Cumulative Impacts for the Civic Center Area, Malibu, California*. Final Report. (Stone Environmental, McDonald Morrissey Associates, and Earth Consultants International; 2010).

c. Failure rates of septic systems and contribution of nitrogen and phosphorus from failed and short-circuited septic systems should be updated using information from the Stone Environmental 2004 OWDS risk assessment report.

d. There is insufficient documentation of the calibration approach and the basis for the assumptions regarding percentages of nutrients from failed, short circuited and commercial systems.

e. Page 34 of the 2003 nutrient TMDL summarizes the inaccurate information described above. Due to the above mentioned flaws in the estimation of these baseline numbers, Tables A-1 and A-4 references to septic systems are not accurate.

Furthermore, the following critical deficiencies exist in the RWQCB 2009 spreadsheet model (Lai, 2009; cited in TMDL report) forming the basis for the draft TMDL's OWDS source analysis:

a. The RWQCB's CSTR spreadsheet model is not available for review (i.e., the equations, model parameters, and input values are included in the RWQCB publication);

b. The RWQCB's "validation" of the CSTR spreadsheet model results ignored the contributions of stormwater runoff, golf course fertilization, Tapia discharge, etc. to the total nutrient concentration measured in Malibu Lagoon. This is a serious error that leads to inflated estimates of OWDS' nutrient discharges.

c. The spreadsheet fails to consider the degree to which, historically, nitrogen concentrations in Malibu Lagoon have increased as a result of entrapment of fine sediments.

d. Malibu Lagoon mixing dynamics may improve with the Lagoon Restoration Project, with shorter residence times affording better mixing with greater attenuation of nutrient concentrations than represented in the RWQCB model. See also Malibu Lagoon Restoration comments below.

e. The trend lines in the chart shown on Figure 5-1 of the TMDL report are not labeled properly making the chart difficult to review;

f. The RWQCB's model-based estimates of OWDS nutrient discharges exceeded TMDL load allocation values. However, these calculations do not prove that OWDS discharge results in excursions of the previous TMDL numeric target as suggested in the TMDL text.

g. Finally, it must be noted that during the RWQCB's 2009 Malibu Civic Center OWDS Prohibition proceedings, the City of Malibu commented to the RWQCB and objected to the analysis and findings of Technical Memorandum #4.[5] The proposed TMDL's source identification analysis of OWDS is heavily reliant on this same flawed technical memorandum.

5. (Waste) Load Allocations Should Apply Only to Major Stressor Sources **Comment 11-7**

OWDS were not identified as a major stressor sources in Section 9.2.2 of the TMDL; yet, the draft TMDL assigns a specific load allocation to them. OWDS should not be given a specific load allocation unless technical analysis has shown them to be a significant source relative to major stressors to aquatic life.

6. TMDL Does Not Consider Effects of Malibu Civic Center OWDS Prohibition **Comment 11-8**

Under the terms of the RWQCB's 2009 Civic Center OWDS Prohibition, and the subsequent 2011 Memorandum of Understanding between the RWQCB and the City, impacts from onsite wastewater discharges from the Malibu Creek and Lagoon contributory areas within the City will be eliminated in phases between 2015 and 2025. These regulatory mechanisms have already been put into place in order to eliminate potential impacts from OWDS discharges from the Malibu Civic Center area to Malibu Lagoon. Therefore, the portion of the OWTS nutrient load allocation established based on the OWDS source analysis for the Civic Center area drawn from the 2003 TMDL's is based on outdated information and should be deleted from the current TMDL.

7. TMDL Does Not Consider Effects of Malibu Lagoon Restoration **Comment 11-9**

As mentioned above, according to the project description itself, the Restoration Project is intended to improve circulation, increase tidal flow, and enhance habitat diversity[6]. Thus, Malibu Lagoon mixing dynamics are intended to improve with the Lagoon Restoration Project, with shorter residence times affording better mixing with greater attenuation of nutrient concentrations than represented in the RWQCB model. As a result of the project, sediment ecology (O/E, IBI scores, species diversity) is changing, in particular due to the removal of the highly anoxic nutrient enriched sediments. The baseline of the Lagoon has been altered from when this impairment was first considered.

The TMDL's assumption (based upon comparisons to other natural coastal estuaries) that a doubling of the Lagoon species and richness could be attainable is also improbable. The systems compared to Malibu Lagoon were not comparable, as they had minor physical repairs with

[5] http://www.malibucity.org/download/index.cfm/fuseaction/download/cid/15865/; http://www.malibucity.org/index.cfm/fuseaction/DetailGroup/navid/493/cid/15819/

[6] California Coastal Commission Item W6a Staff Report 9/29/10 for 10/13/10 Hearing on Application 4-07-098. http://www.malibucity.org/index.cfm/fuseaction/DetailGroup/navid/550/cid/18117/

smaller increases to tidal flushing. The 2013 "baseline" benthic species counts for Malibu Lagoon are essentially all "zero," since the entire habitat was graded and disturbed. Projection of an attainable numeric response 10 or 25 years from now must be delayed at least until the 5-year post-construction project evaluation can be completed. Therefore, the City requests that the species diversity target of 35 in the Lagoon be removed, as there is no basis for that target and the baseline used is no longer valid.

Similarly, any listing, reference or comparison used for chemistry, sediment, eutrophication, algal cover or benthic community effects from before the Malibu Lagoon Restoration Project should no longer be used as a valid reference point.

The TMDL must, but does not, consider the Southern California Coastal Research Project's relevant research: *Sediments As A Non-point Source of Nutrients to Malibu Lagoon, California* prepared by Martha Sutula, Krista Kamer, Jaye Cable (SCCWRP Report to Los Angeles Regional Water Quality Control Board) - November 2004. [7]

The above mentioned SCCWRP study attributes degradation in Malibu Lagoon to these artificially created hydrological features, and characterizes the resulting entrapment of fine sediment as the main driver of the Lagoon's habitat health since 1983. The draft TMDL did not analyze the significance of State Parks' role in the 1983 hydro-modifications and the resulting water quality and ecological outcomes. Chemical, sediment, and nutrient inputs were chosen by the USEPA as the predominate stressors and attributed to a series of anthropogenic sources including but not limited to treated sewage, OWDS, land development, and construction of Pacific Coast Highway. Whereas, the draft TMDL document fails to fully analyze the significance of the ecological response to the State Parks' 1983 attempt to restore the site to a natural ecosystem without success. The TMDL text refers to hydro-morphological influence on Malibu Lagoon sedimentation and ecology on Page 9-20,

> *"The strength of the evidence supporting the causal pathway between increased sedimentation and reduced habitat quality leading to biological impairment is strong. Therefore, the complete causal pathway between altered hydrology and biological impairment is supported by the evidence."*

Yet, the draft TMDL source analysis, linkage analysis, and load allocations fail to thoroughly consider the hydro-morphological impacts from the 1983 creation of the three artificial channels in the Lagoon. At a minimum, the TMDL should acknowledge that the primary cause of ecologic changes leading to listing in the first place may be this 1983 anthropological change to the Lagoon's size and shape. The USEPA provides a reference system rationale to try to explain why doubling of the Lagoon species and richness is attainable. However, expectations that the 1983 modifications to the Malibu Lagoon, or the newly engineered Malibu Lagoon, will ever compare favorably to other natural systems which lack the same localized physical constraints is unrealistic. Protection of aquatic life in Malibu Lagoon can be better achieved through working with State Parks to control activities on those parklands, rather than imposing additional or new (waste) load allocations for perceived or alleged stressor sources. In summary, the critical uncertainties surrounding efforts to define realistically attainable biological targets for Malibu Lagoon, and the practical consequences of

[7] http://www.malibucity.org/index.cfm/fuseaction/detail/navid/493/cid/18446/.

proceeding to define these targets despite those uncertainties, are essentially ignored in the TMDL document.

The draft TMDL document also cites Ambrose et al. (1995), which notes that the distribution and abundance of floating species in the water column was influenced by the transitory and shallow environment of the Lagoon. RWQCB is cited as stating the source of the benthic community effects in the Lagoon impairment is the hydromodification (page 2-8). Yet, the TMDL draw conclusions and projections without citing the impacts from hydromodification in the Lagoon restoration project.

8. Choice of Reference Conditions **Comment 11-10**

Use of Lachusa and Solstice as reference streams is nonrepresentative of natural background conditions in the Malibu Creek Watershed. Streams within the Malibu Creek Watershed, such as Las Virgenes Creek and/or Chesebro Creek, should be used as these share similar characteristics (i.e., Modello formation geology, degree of development).

Reference streams must have the same environmental characteristics as the regulated watershed – especially with respect to the noted primary stressors. This is not the case in Solstice or Lachusa for primary stressors such as geologic inputs, conductivity (ionic salt content), metals, soil composition, natural impervious coverage, sediment uplift and denudation and temperature variability (page 7-5). Lachusa is an extremely small watershed with few similar characteristics to the Malibu Creek tributaries. The Soltice Creek watershed has more potential development influence than either Cheseboro or Upper Las Virgenes.[8] Solstice Creek Park is used heavily by the public, has many trail crossings, stream bank alterations, paved and dirt roadways, visitor kiosks and other development with onsite wastewater inputs. Yet, it has some healthy habitat because it does not have the other stressors of Malibu Creek watershed. These factors did not prevent Solstice from being listed as a reference, so EPA should also consider candidate reference streams like Cheseboro and Upper Las Virgenes, which have more similar characteristics. Note that the 2003 TMDL provided rationale for using Upper Las Virgenes as reference and came to a higher target values for background conditions based upon a more appropriate reference site (See Page 20/21 of 2003 Nutrient TMDL).

9. Open Space Agencies must be included and considered responsible parties to the TMDL **Comment 11-11**

The authors incorrectly state that as of 2010, the entire watershed is covered by a municipal stormwater permit (except Caltrans) and assumes that municipalities have control over the other 50% of the watershed that is parkland (Jurisdictions 4.2). Municipalities have no control over the management and development decisions made by the National Park Service, Santa Monica

[8] Sedimentation rates from natural geology and wildfire in Malibu Creek watershed are high but discounted throughout the draft TMDL. Beginning with Section 4.4, the document notes that uplift and denudation rates in the Santa Monica Mountains results in sediment yields that are noticeably greater than yields from surrounding portion of southern California and even from watershed to watershed in the Santa Monica Mountains, which varied as much as 5,000 tons per square kilometer per year in marine sediments of upper Malibu Creek to 1,000 tons in Solstice and Lachusa. Soil infiltration rates and slopes are also significantly different between the selected reference watersheds. These factors were discounted and the draft TMDL implies that increased development is the sole stressor on chemistry, benthic effects, sedimentation, and stream flow response to large and small storm events.

Mountains National Recreation Area, State Parks, Santa Monica Mountains Conservancy, or the Mountains Recreation and Conservation Authority. Thus each agency should be specifically named as a responsible agency in the Malibu Creek watershed TMDLs for all properties under their management. These open space agencies are not subject to either the Phase I or Phase II NPDES MS4 non-traditional permits. The draft TMDL fails to adequately evaluate and consider potential impacts from parkland management activities and intense public use of the natural areas as a potential causal effect. On page I-4, the draft TMDL notes that nearly half of the watershed is parkland or conserved land; but the document fails to acknowledge the impact these lands have on sedimentation, runoff, use of irrigated water, roadways whether paved or graded soils, creek bank destabilization of trail cutting and intense use by hikers, bikers, and equestrians. Significantly, the draft TMDL document also fails to note that the second highest annual nitrogen and phosphorus loadings come from undeveloped lands, including from chaparral and coastal sage scrub on parklands. [9] Thus, these agencies' impacts must be considered.

10. Index of Biological Integrity Comment 11-12

Index of Biological Integrity (IBI) scores were used, in part, in the draft TMDL to document the current biological integrity of Malibu Lagoon. IBI scores for an estuary are affected by salinity. The Malibu Lagoon salinity is highly variable and at times substantially lower than other estuaries which the IBI scoring methodology is based. The lagoon size is much smaller than historically noted and it remains closed much of the year, except during the winter when ocean influences breach the sandbar and Creek flows help maintain the opening. This had led to decreasing salinity or, at times, greatly fluctuating salinity which has disturbed efforts to restore the Lagoon[10].

The City of Malibu commissioned the United States Geological Survey (USGS) to conduct a study called "Sources of Fecal Indicator Bacteria and Nutrients to Malibu Lagoon and Near-Shore Ocean Water, Malibu, California" in July 2009 and the final report was published in September 2012. Several testing methods were used to provide for multiple lines of evidence. Some of the methods included sources of freshwater from groundwater or imported water, and also included salinity data that may be useful to Region 9's efforts. Data showed that ocean water entering Malibu Lagoon during high tide has higher salinity than lagoon water. As a consequence, ocean water is denser and will tend to sink to the bottom of the lagoon stratifying water in the lagoon by density[11]. Therefore, overall salinity may be highly variable in this system, and may affect biota differently in different areas of the lagoon. Access to this information, through a web link as well as direct access to the researchers, was provided to USEPA by the City during comments on an early draft of the TMDL (email from Jennifer Brown to Cindy Lin on October 22, 2012). However it does not appear that this information

[9] USEPA. 2003. Total Maximum Daily Loads for Nutrients Malibu Creek Watershed. Citation specifically to statements made by Tetra Tech on pages 43 and 65.

[10] State Water Resources Control Board (SWRCB). 2006. California's Critical Coastal Areas: State of the CCAs Report.

[11] P. Martin of U.S. Geological Survey (USGS). 2009. Preliminary Summary Letter Regarding Cooperative Water-Resources Study. Malibu, California.

been considered in this draft TMDL, as the primary references to USGS are flow gage data, and not Lagoon water quality monitoring. The City requests that the USEPA consider this data before approving this TMDL.

11. Use Attainability Analysis Comment 11-13

The City desires to make progress toward reaching attainable goals. In other words, if there are significant problems, the City will play an active role in fixing the problem. But, the definitions of "impairment" and the water quality "targets" the ensuing implementation measures are intended to must reflect technologic practicability and economic realities. According to the USEPA's Use Attainability Analysis (UAA) web page, UAAs may be conducted prior to, concurrently with, or after the development and implementation of a TMDL. UAA is an essential part of the regulatory process establishing water quality objectives for this waterway, and the UAA must be completed prior to implementation of the current TMDL.

Under provisions of 40 CFR §131.10(g), states may use a UAA to remove a designated use which is not an existing use, as defined in §131.3, or establish sub-categories of a use if the state can demonstrate that attaining the designated use is not feasible. The draft TMDL does not, but should, recognize that there are multiple ways to define "protection of aquatic life." The biological objectives USEPA is striving to meet with this TMDL may be ideal in the context of protecting existing high-quality streams. However, the costs of TMDL implementation, relative to the choice of water quality targets expressed in the draft TMDL, far outweigh the benefits of attempting to achieve "wilderness-like conditions" in a waterway like this, where the level of biologic diversity has already been established for species better suited to challenging natural background conditions and/or subtle influences of the limited built environment.

Furthermore, the State is currently in the process of establishing state-wide biological objectives that take into consideration some of the points mentioned above (specifically, applicability to conservation of existing high quality streams versus restoration of altered streams or unique environments). It would be premature for the USEPA to assign biological objectives ahead of State action. With respect to the State's regional water quality objectives, the attainability of the objectives, given economics and all other factors which affect water quality in area, must be considered in the overall process of establishing the objectives. This is a legal requirement under Section 13241 of the Water Code, and the USEPA should wait to establish any objectives until after this analysis has been completed.

To our knowledge, there are no wastewater or stormwater treatment technologies currently in existence that, if implemented in the Malibu Creek Watershed, would restore the watershed streams and lagoon to the level of environmental quality specified by the proposed TMDL targets. Based on the City's review of the evidence, even in absence of all anthropogenic sources, the natural background conditions in the Malibu Creek Watershed would preclude the creek and lagoon from ever meeting the targets. USEPA Region 9 must account for these facts before establishing these unattainable "targets" for regulatory compliance.

12. Report Recommendations **Comment 11-14**

The following are recommendations that should be considered and reflected within Section 11 of the TMDL report.

The data used to support the draft TMDL is insufficient to justify new targets and allocations for total nitrogen, total phosphorus, and biological diversity. Based on the above comments, the USEPA should wait to establish enforceable targets for biologic diversity until adoption of the impending statewide biological objectives policy. However, given Region 9's obligations under the consent decree, we understand this TMDL may have to be adopted before the statewide biological objectives policy is completed. Thus, given the significance of state policy options for considering economic and use attainability factors in setting these objectives, the USEPA should establish only interim targets for the TMDL at this time. The interim targets should be reconsidered upon the adoption of the state's policy to set the appropriate and feasible final targets and allocations.

Additionally, EPA has an opportunity now to benefit from the experience of a study that can validate many parameters of the TMDL affected by geologic influences. A team of highly qualified scientists from the United States Geologic Survey (USGS) have developed a watershed model, SPARROW (SPAtially Referenced Regressions On Watershed attributes) -- a nationally recognized decision support system used in all regions of the US. SPARROW can provide better estimates of total nitrogen and phosphorus loads in surface waters from point and nonpoint sources. The State Water Resources Control Board has been working with the USGS SPARROW team to increase the geologic influence on water quality analysis in California. The USGS SPARROW team has added Malibu Creek watershed as one of its water quality calibration sites in California. The USGS researchers are particularly interested in outlier conditions such as Malibu Creek. The model is a valuable tool because it can provide data that is missing in the current analysis, such as how the constituents move from land, to water and affect downstream conditions. The model also evaluates other potential sources, like air deposition, that were not considered in this TMDL as a potential stressor.

The draft TMDL is missing this critical analysis needed for reliable stressor evaluation. Relying only on the water quality analysis and biological assessments on a site-by-site and reference stream basis reduces the certainty of the recommendations. All available water quality results have been supplied and the SPARROW team recently finished the calibration for nitrogen and will soon complete the calibration for phosphorus and will begin the interpretation soon after. The team in California is lead by Joseph Domagalski in Sacramento who can be reached at 916-278-3077. EPA, SWRCB and RWQCB, and all responsible agencies should join in an effort to apply the SPARROW model to the Malibu Creek watershed for a more complete scientific analysis before any TMDL targets are applied.

In conclusion, all of these comments can be simply summarized as follows. As explained at the beginning of this letter, Malibu has provided substantial evidence for removing Malibu Lagoon and Malibu Creek sediment/siltation from this draft TMDL to Category 4B. Nevertheless, the City has also gathered and provided substantive comments on the draft TMLD itself that must be considered before the TMDL is adopted. Given these important and highly technical issues that remain, the USEPA should delay in adopting this TMDL until this issues can be reviewed and resolved. At minimum, the new TMDL objectives should be delayed until at least two events occur (1) a valid watershed model can be applied to Malibu Creek to evaluate geologic influences and (2) the ecological effects of the current Malibu Lagoon restoration project can be evaluated in five years. USEPA should also wait to establish enforceable targets for biologic diversity until adoption of the impending statewide biological objectives policy. In the event that the EPA is compelled to adopt the TMDL before the State has adopted its policy, the USEPA should establish only interim targets for the TMDL at this time. The interim targets could then be reconsidered following the above-mentioned events and appropriate and feasible final targets and allocations could be set.

The City of Malibu appreciates the opportunity to provide comments on the draft TMDL document. If you have any questions about these comments please contact Dr. Andrew Sheldon on our staff at (310) 456-2489 or asheldon@malibucity.org.

Sincerely yours,

Jim Thorsen
City Manager

cc: Christi Hogin, City Attorney
Victor Peterson, Environmental Sustainability Department Director
Andrew Sheldon, Environmental Health Administrator
Jennifer Brown, Senior Environmental Programs Coordinator

City of Thousand Oaks

Public Works Department

2100 Thousand Oaks Boulevard • Thousand Oaks, CA 91362
Phone 805/449.2400 • Fax 805/449.2475 • www.toaks.org

Jay T. Spurgin
Public Works Director

January 25, 2013

Cindy Lin, PhD (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Subject: COMMENTS ON DRAFT TMDLS FOR MALIBU CREEK & LAGOON TMDL FOR SEDIMENTATION AND NUTRIENTS TO ADDRESS BENTHIC COMMUNITY IMPAIRMENTS, DATED DECEMBER 2012

Dear Dr. Lin:

The County of Ventura (County), Ventura County Watershed Protect District (District), and the City of Thousand Oaks (Ventura County MS4s) appreciate the opportunity to provide comments on the Draft TMDL for Sedimentation and Nutrients to address Benthic Community Impairments (hereafter referred to as the "Draft Malibu Benthic TMDL" or "Draft TMDL"). In general, we share EPA's goal of protecting in-stream biology and habitat and would like to work with the EPA to improve the Draft TMDL so that it can better achieve its objectives. However, we are concerned with several aspects of the Draft TMDL that we feel are precedent setting and ahead of science and policies being developed by the State of California. We believe the Draft TMDL could result in significant expenditure of public resources for dischargers in the Malibu Creek watershed that are not justified by the information and science presented in the Draft TMDL.

The intent of this letter is to request and provide technical support for the following requests:

I. Removal of the sedimentation waste load allocations (WLAs) for the Ventura County MS4s,
II. Removal or modification of the nutrient WLAs for the Ventura County MS4s,
III. Removal of benthic macroinvertebrate targets and allocations for Malibu Creek and Malibu Lagoon, and
IV. Request for Additional considerations.

To support these requests, we have included three technical attachments to this letter and summarized the key points below.

I. Removal of the Sedimentation WLAs

Comment 12-1

As discussed in Attachment A, we are requesting that sediment WLAs for Ventura County MS4s be removed from the Draft TMDL. The request is made based on the belief that MS4 WLAs controlling for sediment supply in the upper watershed will not address the excess sedimentation impairment in main stem Malibu Creek because:

1. Ventura County MS4s contribute only a minor fraction (significantly less than 10%) of total sediment loading in the watershed annually.
2. County unincorporated area (UA) and the City of Thousand Oaks MS4s are located in the upstream reaches of the Malibu Creek Watershed and sediment loading to main stem Malibu Creek from such MS4s is disrupted by a sequence of dams which obstruct downstream sediment transport.
3. Post-construction/hydromodification requirements in the Ventura MS4 NPDES Stormwater Permit, with which Ventura County MS4s must comply, address the potential impacts of urban development on increases to in-stream work, which is a key cause of the sedimentation and habitat/biota impairments based on the Draft TMDL stressor analysis.

In addition, there are several inaccuracies in the technical approach to developing sedimentation WLAs that are not consistent with the state of the practice for hydromodification management (Hydromodification Assessment and Management in California, SCCWRP Technical Report 667, April 2012, Managing Runoff to Protect Natural Streams: the Latest Development on Investigation and Management of Hydromodification in California, Stein et al, 2005), most notably that WLAs which require a reduction in supply to a reach where in-stream erosion is occurring will exacerbate sedimentation by starving already hungry water of its sediment transport capacity; open space sources are significant and should be accounted for; evidence providing a link between MS4s and the sedimentation impairment is not provided; work associated with instantaneous peak flows is not reflective of “effective” work; and the change in instantaneous work at one cross-section is not reflective of changes to the sediment regime of a watershed. These are discussed in more detail in Attachment A.

REQUESTED ACTION: We respectfully request that sediment WLAs for Ventura County MS4s be removed from the Malibu Benthic TMDL.

In addition, as outlined in Attachment B, we are requesting the removal of the nutrient WLAs (or replacement of the proposed targets and WLAs for Ventura County MS4s with the 2003 Nutrient TMDL values). For the same reasons as outlined in Attachment A for sediment, transportation of particulate nutrients downstream to the main stem of Malibu Creek and Malibu Lagoon is disrupted by a sequence of dams. These dams also prevent significant dry weather flows that could transport dissolved nutrients from reaching the main stem. As a result, including new allocations for the Ventura County MS4s is not warranted.

II. Removal or Modification of the Nutrient WLAs for the Ventura County MS4s.

Comment 12-2

The Ventura County MS4s are concerned with the analysis that was done to justify changes to the nutrient targets and allocations that were established in the 2003 Total Maximum Daily Loads for Nutrients in the Malibu Creek Watershed (2003 Malibu Nutrient TMDL). Based on our review of the Draft Malibu Benthic TMDL, it appears that the basis for the need to include lower total nitrogen targets and allocations in the Draft Malibu Benthic TMDL and to apply both the total phosphorus and total nitrogen targets and allocations year round were the following:

1. A case study conducted in support of the development of nutrient numeric endpoints (NNE) policy being developed by the State of California that was updated to support analysis for this Draft TMDL. The analysis implied that lower nutrient targets were required to achieve the targeted concentrations of algal biomass in the watershed.

2. Analysis of additional reference reach data collected since 2003 demonstrated that reference reach concentrations were lower than those presented in the 2003 Malibu Nutrient TMDL.

3. The 2003 Malibu Nutrient TMDL targets are being achieved and the percent cover of algae is not yet meeting the TMDL targets.

4. The Draft Malibu Benthic TMDL stressor analysis identified algal percent cover as a potential cause of the benthic macroinvertebrate impairments being addressed in the Draft TMDL.

Again, we are concerned with establishment of new requirements based on analysis associated with a State Policy that is under development. Additionally, we feel that the technical support for the modifications to the targets and allocations from the 2003 Nutrient TMDL are inadequate for the following reasons (as detailed in the attached technical comments – Attachments A through C):

1. The nutrient analysis provided in the Draft Malibu Benthic TMDL does not justify lowering the targets and allocations at this time. The Draft TMDL incorrectly determines that the watershed is already meeting the 2003 Malibu Nutrient TMDL nutrient targets and therefore lower targets are necessary to reduce algal biomass. Additionally, the linkage between reducing nutrient concentrations and reducing algal biomass is not established in the Draft TMDL.

2. The Draft Malibu Benthic TMDL does not provide sufficient linkage between nutrient concentrations and the BMI impairments. The stressor analysis that was conducted to determine that elevated mat algal coverage resulting from excess nutrients as a major stressor causing impairment to the BMI communities in Malibu Creek fails on several counts.
    a. The Draft TMDL cites results that there was no significant correlation of IBI scores with macroalgal cover and one study found that IBI scores increased with microalgal cover.

b. The Draft TMDL states there is "almost no correlation between algae coverage and either inorganic N or inorganic P concentrations."
c. The stressor analysis diminishes or dismisses the impacts of natural watershed conditions, invasive species, and other potential toxicants, such as pyrethroid pesticides, as stressors that could be significant contributing factors.

3. The NNE analysis is flawed and does not support the need to lower the allocations. The modeling tools used for the analysis have some inherent biases and other technical issues that could influence the results and the results do not appear to accurately predict conditions in the Malibu Creek watershed.

4. The data from reference reaches is not sufficient to demonstrate the need for lower values nor does it appropriately account for true reference conditions in the watershed.

5. The Draft TMDL does not provide any technical justification for including winter season or wet weather allocations. The only references to the need for year round and wet season allocations are statements that Malibu Lagoon is most sensitive to nutrient loads delivered during winter storms and stored within the estuary and that algal coverage is high year round. However, no technical information is provided to link the selected targets and allocations to the nutrient loads delivered to the lagoon that may be of concern or to the biological impairments addressed by the Draft TMDL. Additionally, no algal biomass or percent cover data is presented to demonstrate an impairment in wet weather, nor is any technical analysis provided to show that additional reductions in nutrients are required during the winter season, and particularly during wet weather.

6. The proposed nutrient targets and allocations are likely unachievable with available technology for stormwater treatment (See Attachment C).

The Draft TMDL does not provide sufficient technical information to justify that the additional nutrient reductions will result in improvements to the benthic community impairments, or provide analysis that shows that lower allocations for Ventura County MS4s are necessary to address downstream impairments. On page 9-12, the Draft TMDL acknowledges that "nutrient concentrations were not limiting on algal growth in Malibu Creek" and the discussion above shows that the linkage between algal biomass and benthic community impacts is flawed. As a result, we believe it is an inappropriate use of public funds to require significant expenditures to address nutrient reductions that the Draft TMDL does not demonstrate will result in achievement of the goals of improving benthic community conditions, particularly when another TMDL, i.e. 2003 Malibu Nutrient TMDL, exists to control nutrient discharges in the watershed. This makes the proposed TMDL duplicative and unnecessary.

REQUESTED ACTION: We respectfully request that the proposed nutrient allocations and targets be removed from the Draft TMDL. Alternatively, we request that the allocations and targets from the 2003 Malibu Nutrient TMDL be included in the Malibu Benthic TMDL.

III. Removal of Benthic Macroinvertebrate Targets and Allocations for Malibu Creek and Malibu Lagoon.

Comment 12-3

Our final concern is that the Draft TMDL is setting targets and allocations for benthic macroinvertebrates that are inconsistent with the direction the State Water Resources Control Board is going with the development of the Biological Objectives for the State of California. While we recognize that the policy is not yet fully developed, the State has made some determinations and developed scientific information that are relevant and were not considered as part of the Malibu Benthic TMDL development. These elements include:

1. The SC-IBI is not appropriate for setting biologically based objectives due to the lack of appropriate reference sites and conditions for many locations in California, including the Malibu Creek watershed.
2. The scientific advisory group for the biological objectives is currently recommending that a multi-scoring tool approach be used that does not rely solely on one index (such as the O/E).
3. The science advisory group is recommending consideration of a "grey area" for setting thresholds for biological objectives within which additional data would be collected before determining whether an impairment exists.

The Draft Malibu Benthic TMDL sets two separate targets based on the SC-IBI and O/E, neither of which is currently being recommended for the biological objectives for California. Additionally, the analysis in the Draft TMDL is based on reference conditions that do not adequately represent the conditions in the Malibu Creek watershed, particularly the presence of the Modelo formation. The Stakeholders feel that it is inappropriate to develop a TMDL that includes targets that are clearly in contradiction with the science being developed by the State of California regarding biological objectives.

Additionally, we feel it is inappropriate to include targets for benthic macroinvertebrates in the Draft TMDL, since they are not pollutants as defined under the Clean Water Act. The US District Court for the Eastern District of Virginia recently ruled that EPA exceeded its authority in establishing a flow-based TMDL[1]. This case ruled that EPA cannot use surrogates in place of regulating pollutants. According to the case, EPA is charged with "establishing TMDLs for appropriate pollutants; that does not give them the authority to regulate nonpollutants." The term "pollutant" is defined in the CWA as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." 33 U.S.C., § 1362(6). Benthic macroinvertebrates are not defined as pollutants by the Clean Water Act.

[1] Virginia DOT v. EPA, E.D. Va., No. 1:12-cv-775, 1/3/13

However, there are benthic macroinvertebrate targets in the Draft TMDL and those targets are additionally assigned as instream allocations that are required to be included in the NPDES permits for dischargers. On page 10-13, the Draft TMDL states "The biological response numeric targets for Malibu Creek and Lagoon are directly linked to the allocations and should be placed into the applicable regulatory mechanism (i.e., NPDES permit) in order to ensure that the benthic community condition achieves the water quality objectives." As a result, this Draft TMDL is inappropriately regulating nonpollutants through the inclusion of benthic macroinvertebrate targets and corresponding in-stream allocations. By extension, it is also arguable that listings for such non-pollutant based impairments are also inappropriate under the Clean Water Act. Thus, the original listing is inappropriate, and therefore improperly the subject of this TMDL.

We feel that the establishment of benthic macroinvertebrate targets at this time could lead to confusion and conflict with the policies being developed by the State of California, the inability to develop a true assessment of problems and impairments in the watershed using science being developed by the State, and could result in significant expenditures of public resources to address a problem that may not exist or may be caused by the natural conditions in the watershed.

REQUESTED ACTION: We respectfully request the removal of the SC-IBI, O/E and species richness targets for Malibu Creek and Malibu Lagoon from the TMDL.

IV. Request for Additional Considerations.

In addition to these major points, the Draft TMDL includes a number of inconsistencies, confusing statements and other items that need to be clarified. A detailed list of these items are included in Attachment B. However, here are the key points that we feel require clarification:

1. The TMDL should clarify that the entire watershed is not under the jurisdiction of an MS4 permit. MS4s do not have responsibility for or jurisdiction over agricultural and open space discharges or areas that do not drain through an MS4 system. **Comment 12-4**

2. The Draft TMDL should clearly identify the impairments and reaches covered by the TMDL. TMDL targets should only apply to the main stem of Malibu Creek and Malibu Lagoon and instream allocations should only apply to those reaches. **Comment 12-5**

3. The instream allocations should clearly be identified as not applying as end-of-pipe limits and that permit limits need to be developed by translating the instream values to applicable effluent limitations. Additionally, the requirement to include permit limitations for the biological and algal response targets should be removed. **Comment 12-6**

REQUESTED ACTION: We respectfully request the clarifications listed above and in Section 8 of Attachment B are made to the Malibu Benthic TMDL.

We appreciate your consideration of these comments. If you have any questions, please contact me at (805) 449-2471.

Sincerely,

JoAnne Kelly

JoAnne Kelly
Resource Division Manager

Attachments

A. Discussion Supporting Removal of Sediment WLAs for Ventura County MS4s
B. Discussion Supporting Adjustment of Nutrient Targets and WLAs for Ventura County MS4s and Removal of Benthic Macroinvertebrate Targets and Allocations
C. Technical Achievability Assessment of the Malibu Creek and Ventura River Nutrient TMLs

DPW:530-25(21)/dlz/Final/Kelly/Final Malibu Benthic TMDL.doc

ATTACHMENT A.

Discussion Supporting Removal of Sediment WLAs for Ventura County MS4s

This attachment provides technical support for the request to remove sedimentation waste load allocations (WLAs) for unincorporated Ventura County and City of Thousand Oaks MS4s. The request is made based on the belief that MS4 WLAs controlling for sediment supply in the upper watershed will not address the excess sedimentation impairment in main stem Malibu Creek because:

1. Ventura County MS4s contribute only a minor fraction (significantly less than 10%) of total sediment loading in the watershed annually.

2. Unincorporated Ventura County and the City of Thousand Oaks MS4s are located in the upstream reaches of the Malibu Creek Watershed and sediment loading to main stem Malibu Creek from such MS4s is disrupted by a sequence of dams which obstruct downstream sediment transport.

3. Post-construction/hydromodification requirements in the Ventura County MS4 NPDES permit, with which unincorporated Ventura County and the City of Thousand Oaks must comply, address the potential impacts of urban development on increases to in-stream work, which is a key cause of the sedimentation and habitat/biota impairments based on the Draft TMDL stressor analysis.

Furthermore, it is likely that sedimentation impairments result from hydromodification (i.e., the alteration of watershed processes such as water balance, surface and near surface runoff, groundwater recharge, and sediment delivery and transport associated with changes in land use) and therefore should be managed as such. Hydromodification is statutorily considered pollution rather than a pollutant, and would therefore not be subject to regulation through TMDLs. Lastly, there are several inaccuracies in the technical approach to developing sedimentation WLAs that are not consistent with the state of the practice for hydromodification management (Hydromodification Assessment and Management in California, SCCWRP Technical Report 667, April 2012, Managing Runoff to Protect Natural Streams: the Latest Development on Investigation and Management of Hydromodification in California, Stein et al, 2005), most notably that WLAs which require a reduction in supply to a reach where in-stream erosion is occurring will exacerbate sedimentation by starving already hungry water of its sediment transport capacity. Justification for the removal of sedimentation WLAs for the unincorporated Ventura County and City of Thousand Oaks with respect to the above points is provided below in addition to notes on the inaccuracies of the technical approach used to develop WLAs.

Detailed Discussion and TMDL Comments

Ventura County MS4s Contribute Minor Fraction of Total Sediment Loading and Work: The Draft TMDL designates WLAs to MS4s for sedimentation and nutrients which are intended to address, in part, the listing of Malibu Creek on the 303(d) list for sedimentation and benthic macroinvertebrates impairments. The TMDL does not provide sufficient evidence linking the sedimentation impairment to MS4s and in fact, there is a wide body of evidence available suggesting that MS4s contribute only a minor fraction of the total watershed sediment load.

The table below summarizes lognormal mean total suspended solids (TSS) event-mean concentrations (EMCs) developed based on land use monitoring throughout Los Angeles and Ventura Counties. These data indicate that the average EMC (not accounting for site-specific land use distributions) for urban land uses which fall under the jurisdiction of MS4s is 105 mg/L. This is far below the average EMC for non-urban land uses, such as agriculture and vacant/open space land uses, which is 608 mg/L.

Furthermore, estimates of TSS loading based on the default EMCs and runoff coefficients in the LARWQCB-approved Structural BMP Prioritization and Analysis Tool[1] (SBPAT) (Geosyntec, 2008), Southern California Associations of Governments (SCAG, 2005) land use and mean watershed precipitation values, indicates that areas draining to or through unincorporated Ventura County or City of Thousand Oaks MS4s contribute only 10% of the total TSS load to the downstream dams[2]. Moreover, if it is considered that dams trap between 90 and 100 percent (Mount, 1995) of the sediment load that is supplied to them, the percentage contribution by unincorporated Ventura County and City of Thousand Oaks MS4s to the downstream impaired reach of Malibu Creek then the 10% would be further significantly reduced.

[1] SBPAT was developed for Los Angeles County, City of Los Angeles, Heal the Bay, State Water Resources Control Board, and the Los Angeles Regional Water Quality Control Board.
[2] This estimate is based on land-use based water quality modeling of the 85th percentile 24-hour storm event and does not include open space and agricultural land uses draining to or through modeled MS4s. It is recognized that there are more comprehensive analyses that can be conducted to estimate watershed sediment yield (e.g. sediment yield analyses such as GLU, RUSLE) however SBPAT was used based on model availability to get a rough estimate of MS4 contributions, relative to total drainage area loads.

Land Use	Log-transformed Arithmetic Mean* EMC (mg/L)[3]
Commercial	67
Industrial	219
Transportation	78
Education	100
Multi-Family Residential	40
Single-Family Residential	124
Agriculture	999
Vacant/Open Space	217

* most land use EMC datasets are most closely represented by the lognormal distribution, therefore log-mean computations are conducted in log-space and transformed back to arithmetic space for reporting purposes.

Dams Disconnect Impaired Reach from Ventura County MS4s: The dams located between unincorporated Ventura County and City of Thousand Oaks MS4 outfalls and the main stem of Malibu Creek act as a partial obstruction to downstream sediment transport, thereby both 1) limiting the sediment supplied by the upper watershed to the main stem of Malibu Creek (as it is initially discharged into the channel in the upper reaches of the watershed, but enters the main stem of Malibu Creek only after downstream transport by channel flows), and 2) exacerbating in-stream erosion downstream.

The impacts of dams on the hydrologic and sediment regimes of creeks have been well documented (see Chapter 16 of California Rivers and Streams, "The Daming of California's Rivers", Jeffrey Mount, 1995). In general, the construction of dams is accompanied by ***reductions in the size and quantity of sediment supply*** and decreases in peak and total discharge

[3] These data are primarily based on a study conducted by Los Angeles County for which they monitored eight land use stations. Details on the Los Angeles County study can be found in the Los Angeles County 1994-2000 Integrated Receiving Water Impacts Report, 2000 and Los Angeles County 2000-2001 Stormwater Monitoring Report, 2001. It was supplemented by agricultural runoff data from Ventura County Flood Control District NPDES monitoring efforts (VCFCD, 1997-2003).

to downstream reaches. It is estimated that large dams ***trap between 90 and 100 percent of the sediment load*** that is supplied to them (Mount, 1995). These impacts in turn affect channel morphology typically resulting in aggradation upstream and ***erosion downstream of the dam***, hydraulic readjustments related to changes to the flow regime, and changes to bed and bank materials (i.e., dams prevent the downstream movement of coarse bedload).

There are several dams and lakes in the watershed that were constructed for water supply and recreation including Eleanor Dam, Sherwood Dam, Malibou Dam, Century Dam, Westlake Dam, Rindge Dam, Potrero Dam and Lindero Dam. Approximately 97% of the Malibu Creek watershed drains through a dam prior to discharge into Malibu Lagoon. The unincorporated Ventura County (and by reference, Ventura County Watershed Protection District [VCWPD]) and City of Thousand Oaks urban areas, which would be regulated under their MS4 WLAs, all drain through at least one dam prior to being discharged into the main stem of Malibu Creek, and some drain through up to three dams prior to being discharged into the main stem.

These dams have significantly modified the flow and sediment regime of Malibu Creek. Because there are so many dams in sequence, Malibu Creek has become a highly compartmentalized system, composed of numerous localized flow and sediment regimes, not significantly impacted by process changes in upstream or downstream segments. For example, while main stem Malibu Creek is considered a perennial stream, some reaches have been observed to be seasonally dry, including the reaches associated with monitoring locations MC-12, R-9 and MC-1. Such reaches are immediately downstream of Century Dam (MC-12 and R-1) and Rindge Dam (MC-1), which likely restrict flows from discharging to downstream reaches under some conditions resulting in intermittent flows in these reaches.

Furthermore, it is estimated that Rindge Dam itself has sequestered 52,000 tons of sediment since construction (Preliminary Malibu Creek Environmental Restoration Feasibility Study documents). That is the equivalent of 604 tons per year, which is more than the loading estimated from unincorporated Ventura County and City of Thousand Oaks combined (approximately 420 tons/year based on land use-based modeling discussed above) and 10% of the natural average annual total watershed sediment load estimated by the TMDL. These numbers do not include the sediment sequestered by the seven other dams in the watershed. While it seems like this sediment removal from the system would help the excess sedimentation impairment, studies have shown that sediment sequestration behind dams leaves dam discharges looking for sediment to maintain transport capacity, resulting in downstream channel bed and bank erosion, thereby exacerbating the excessive sedimentation issue in areas downstream of dams (see Chapter 16 of California Rivers and Streams, "The Daming of California's Rivers", Jeffrey Mount, 1995).

MS4 Sediment Loading is Addressed by Existing Programs: Furthermore, new requirements included into Order No. 09-0057 NPDES Permit No. CAS004002 Waste Discharge Requirements for Storm Water (Wet Weather) and Non Storm Water (Dry Weather) Discharges from the MS4 within the Ventura County Watershed Protection District, County of Ventura, and Incorporated Cities Therein (Ventura County MS4 NPDES Permit), with which both unincorporated Ventura County and the City of Thousand Oaks must comply, address the impacts of land use changes on watershed processes such as the channel flow and sediment transport regimes. Under the Planning and Land Development Program portion of the Ventura County MS4 NPDES Permit, permittees are required to ensure that qualifying project applicants:

- Lessen the water quality impacts of development by using smart growth practices such as compact development, directing development towards existing communities via infill or redevelopment, safeguarding of environmentally sensitive areas, mixing of land uses (e.g., homes, offices, and shops), transit accessibility, and better pedestrian and bicycle amenities.

- Minimize the adverse impacts from storm water runoff on the biological integrity of Natural Drainage Systems and the beneficial uses of waterbodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100).

- Minimize the percentage of effective impervious surfaces on land developments to mimic predevelopment water balance through infiltration, evapotranspiration and reuse.

- Minimize pollutant loadings from impervious surfaces such as roof-tops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs (including Source Control BMPs such as good housekeeping practices), Low Impact Development Strategies, and Treatment Control BMPs.

- Properly select, design and maintain Treatment Control BMPs and Hydromodification Control BMPs to address pollutants that are likely to be generated, assure long-term function, and to avoid the breeding of vectors.

- Prioritize the selection of BMPs suites to remove storm water pollutants, reduce storm water runoff volume, and beneficially reuse storm water to support an integrated approach to protecting water quality and managing water resources in the following order of preference: 1) infiltration BMPs, 2) BMPs that store and reuse storm water runoff, 3) BMPs that incorporate vegetation to promote pollutant removal and runoff volume reduction and integrate multiple uses, 4) BMPs which percolate runoff through engineered soil and allow it to discharge downstream slowly, 5) approved modular, proprietary treatment control BMPs that are based on LID concepts that meet pollution removal goals.

Such requirements address the impacts of land use changes on the flow and sediment regime of Malibu Creek Watershed through the control for and mitigation of potential flow modifications which result from increases in imperviousness. In this way, they serve as a clear, logical regulatory structure that is already in place and, over time, will support the objectives of the Draft TMDL more directly and effectively than the MS4 sedimentation WLAs.

Additional Technical Considerations: Lastly, in review of the methods used to develop the sedimentation WLAs, the following technical inaccuracies are noted, given the current state of the practice as described in Hydromodification Assessment and Management in California, SCCWRP Technical Report 667 (SCCWRP, 2012). Much of the data required to bring the analysis up to practice standards are available and are discussed in Preliminary Draft documents related to the Malibu Creek Restoration Feasibility Study.

In-stream erosion will be exacerbated if Draft sediment WLAs are implemented: The Draft TMDL, in discussion of sedimentation as a major stressor states that, "Increased sedimentation can arise from both upland and in-channel sources; however, it is most strongly associated with *changes in the flow regime* that cause channel instability". Average annual sediment load-based WLAs, (i.e., Ventura County MS4 is allocated a specific load of sediment that they can discharge on an annual basis[4]), as currently defined, will not effectively address the excess sedimentation stressor, defined as in-stream erosion, which is dependent both on stream work and sediment availability. By requiring only a reduction in supply to a reach where in-stream

---

[4] Although this maximum sediment mass-based WLA was set based on an annual *average* value (i.e., roughly half of the years could exceed this while still meeting EPA's estimated pre-development-based loading capacity, over a longer period of time), no allowable WLA exceedances are currently permitted in the draft TMDL.

erosion is occurring, the TMDL is expected to exacerbate sedimentation by starving already hungry water of its sediment transport capacity. Therefore, MS4 sediment load-based WLAs should be removed from the TMDL and the TMDL should instead state that this 303(d) listing is being addressed by existing programs (Ventura County MS4 NPDES Permit).

Open space sources are significant and should be accounted for: Currently, the Draft TMDL designates permitted MS4s as the only parties responsible for addressing the sediment impairment. This list does not seem comprehensive and should include those organizations that conduct roadside maintenance activities and brush clearing practices (i.e. National Park Service, California State Parks) to manage sediment supply from "natural" areas to the extent practical. Based on the land use-based modeling described above, open space land uses contribute approximately 50% of the total TSS load supplied to the impaired reach. Furthermore, much of Malibu Creek's soils are considered highly erodible and it is likely that sediment loads to receiving waters have increased due to brush clearing and roadside maintenance activities where dirt and debris are left on the side of the road or up-slope of creeks. Open space contributions likely comprise even more than 50% of total TSS loads to the impaired reach since the estimate does not account for erosion resulting from the large expanses of natural areas with dirt roads and fire hazards.

Evidence providing a link between MS4s and the sedimentation impairment is not provided: Sedimentation WLAs are allocated to permitted MS4s draining urbanized areas within the watershed based on imperviousness. The conceptual model presented in Section 9 indicates that MS4s are related to sedimentation, which is associated with reduced habitat quality, which itself is related to impaired biology. However, in discussion of reduced habitat quality due to sedimentation, the TMDL states that physical habitat scores throughout the watershed are "generally acceptable and do not appear to correlate with the SC-IBI scores" suggesting that there is no relationship between impaired biology and reduced habitat quality. Furthermore, evidence is not presented which suggests a relationship between imperviousness and sedimentation. While data presented suggests a relationship between low SC-IBI scores and imperviousness, there is no data which directly links imperviousness to sedimentation Therefore, data is presented indicating a relationship between low SC-IBI scores and upstream imperviousness and literature is cited which indicates a relationship between sedimentation and reduced habitat quality however a linkage between the sedimentation impairment and urban areas draining through MS4s is not drawn.

Work associated with instantaneous peak flows is not reflective of "effective" work: To measure the impact of urbanization on watershed hydrology and morphology, the Draft TMDL attempts to compare the "effective" work in the channel prior to and following development, intended to represent the cumulative forces resulting in downstream sediment movement. To do this, the instantaneous work at one channel cross-section (LADPW F-130 gage) is calculated for the pre-development and post-development 2-year and 10-year peak flows. This approach does not reflect the state of the practice for hydromodification management (SCCWRP Technical Report 667, April 2012; Stein et al, 2005) and oversimplifies the impacts of urbanization on watershed hydrology and channel morphology. While urbanization has been shown to increase the magnitude of stormflows, it has also been shown to increase the frequency of flood events, decrease the lag time to peak flow and quicken the flow recession, the combined effects of which modify the living conditions for in-stream biota as well as the morphologic regime and in-stream biota habitat structure (SCCWRP Technical Report 667, April 2012). While it may not be practical to address all such variables, the state of the practice for hydromodification assessment suggests that "effective" work is best estimated based on flow durations (available based on USGS gage data for one location and published in Pre-Draft), which is state of the practice for hydromodification assessment (SCCWRP Technical Report 667, April 2012), instead of instantaneous peak flows.

The change in instantaneous work at one cross-section is not reflective of changes to the sediment regime of a watershed: Currently, post-development impacts are evaluated for a 10 mile reach based on the change in work associated with the 2 and 10 year peak flows prior to and following development at one cross-section which does not effectively address the range of conditions throughout the reach. Furthermore, the post-development impacts analysis was made based on the marriage of hydrology from one-channel location, located approximately 5 miles upstream of the lagoon, with channel geometry data from a location immediately upstream of the lagoon. In-stream work is a site-specific parameter, dependent on hydrology and morphology from the same location. The use of hydrology and morphology from different locations in the calculation of work at one location greatly reduces its validity.

Thank you for the opportunity to review and comment on the Draft TMDL. We appreciate your consideration of removal of sedimentation WLAs for at least the upper watershed MS4 permittees based on the above. We would be happy to collaborate with you in further development of this TMDL to address our joint concerns using an analytical approach reflective of the state of the practice and inclusive of existing efforts.

ATTACHMENT B.

Discussion Supporting Adjustment of Nutrient Targets and WLAs for Ventura County MS4s and Removal of Benthic Macroinvertebrate Targets and Allocations

This attachment provides technical support for the request to remove or modify the nutrient WLAs for unincorporated Ventura County, Ventura County Watershed Protection District and City of Thousand Oaks MS4s (Ventura County MS4s) and the request to remove the benthic macroinvertebrate targets and allocations for Malibu Creek and Malibu Lagoon. In addition, the attachment provides support for additional recommended changes to clarify the Draft TMDL. The technical justifications for these requests are organized as follows:

1. We request that wasteload allocations for Ventura County MS4s be removed from the Draft TMDL. The Draft TMDL does not identify any impairments in reaches to which the MS4s discharge that are not already addressed by the 2003 Nutrient TMDL and does not provide a linkage as to how discharges from Ventura County MS4s are impacting the main stem of Malibu Creek or Malibu Lagoon.
2. The information provided for the revisions to the nutrient targets and allocations are insufficient to justify lower targets and allocations for total nitrogen and total phosphorus than are outlined in the 2003 Malibu Creek Nutrient TMDL.
    a. The nutrient analysis provided in the Draft TMDL does not justify lowering the targets and allocations at this time.
    b. The Draft TMDL does not provide sufficient linkage between nutrient concentrations and the BMI impairments.
    c. The NNE analysis is flawed and does not support the need to lower the allocations.
    d. The data from reference reaches is not sufficient to demonstrate the need for lower values nor does it appropriately account for true reference conditions in the watershed.
    e. The need for lower wet season targets is not justified in the Draft TMDL.
    f. The proposed nutrient targets and allocations are likely unachievable with available technology for stormwater treatment.
3. The Draft TMDL presents macroinvertebrate targets that are inconsistent with the approach being developed by the State Board for biological objectives. Additionally, recent court decisions have clarified that TMDLs may not regulate non-pollutants. As a result, we feel the benthic macroinvertebrate targets and instream allocations should be removed from the Draft TMDL.
4. The discussion regarding MS4 jurisdictions in the Draft TMDL needs to be clarified. MS4s do not have responsibility for or jurisdiction over agricultural and open space discharges or areas that do not drain through an MS4 system.
5. The Draft TMDL targets and allocations should only apply to the main stem of Malibu Creek and Malibu Lagoon as these are the only listings being addressed by this Draft TMDL.
6. The Draft TMDL allocations section should clarify the meaning of instream allocations and remove requirements to include biological and algal response targets in NPDES permits.
7. The TMDL includes a number of other elements that should be clarified.

1 WASTELOAD ALLOCATIONS FOR THE VENTURA COUNTY MS4S SHOULD BE REMOVED FROM THE DRAFT TMDL

Comment 12-7

As discussed in Attachment A, approximately 97% of the Malibu Creek watershed drains through a dam prior to discharge into Malibu Lagoon. The Ventura County MS4s all drain through at least one dam prior to being discharged into the main stem of Malibu Creek, and some drain through up to three dams prior to being discharged into the main stem. These dams act as barriers to the transport of sediment and nutrients to the main stem of Malibu Creek during both dry and wet weather.

Additionally, as discussed in Attachment A, because there are so many dams in sequence, Malibu Creek has become a highly compartmentalized system, composed of numerous localized flow and sediment regimes, not significantly impacted by process changes in upstream or downstream segments. For example, while main stem Malibu Creek is considered a perennial stream, some reaches have been observed to be seasonally dry, including the reaches associated with monitoring locations MC-12, R-9 and MC-1. This observation is confirmed by Table 6-2 on page 6-4 of the Draft TMDL. The table shows that average flows in Malibu Creek are zero during most of the algae growing season. Additionally, Page 1-3 states *"Historically, there is little flow in the summer months; much of the natural flow that does occur in the summer in the upper tributaries comes from springs and seepage areas."* If there is no flow, how can nutrients from upstream discharges be impacting algal growth in Malibu Creek or Malibu Lagoon?

Given the hydrologie disconnect between Ventura County MS4s and the main stem, including allocations for addressing impairments in the main stem is not appropriate. The Draft TMDL does not provide any evidence that discharges from Ventura County MS4s are linked to the impairments in the main stem. Additionally, as will be discussed in detail in the remaining portions of the letter, a TMDL for nutrients already exists in the Malibu Creek Watershed. In order to justify modifications to the 2003 Nutrient TMDL for the Ventura County MS4s, the Draft Benthic TMDL would need to provide information demonstrating that lower allocations and targets are required in Ventura County to address the impairments in the main stem of Malibu Creek. We do not feel that linkage has been made in the Draft TMDL.

The Draft Benthic TMDL includes an analysis of IBI and O/E scores throughout the Malibu Creek Watershed. Two of the sites evaluated are located within Ventura County, LV-9 and PC-8. Both of these sites have median IBIs over the Draft TMDL's proposed threshold for defining impairment (40). Although we recognize these sites are not downstream of MS4 discharges, there are no other sites located within Ventura County that demonstrate an impairment due to Ventura County MS4 discharges. The majority of sites where benthic macroinvertebrate data were collected are below dams that would significantly moderate the influence of discharges from Ventura County and all sites are downstream of significant urban areas within Los Angeles County. As the Draft TMDL does not provide any modeling to show nutrient discharges from Ventura County are being transported to the main stem and no monitoring sites demonstrate impairments within Ventura County, a linkage between Ventura County MS4s and the impairments being addressed by the Draft TMDL has not been demonstrated.

Additionally, no data were presented in the Draft TMDL that demonstrated exceedances of algal coverage in Ventura County. An excel file of the algal percent coverage data used in the Draft TMDL analysis was obtained from USEPA. Although we have concerns about the use of this data for evaluating algal impairments in the watershed (as discussed in more detail later in these comments), these data were used in the Draft TMDL analysis and are the only data available for consideration. A review of the data showed that no percent cover observations were collected in Ventura County since 2006. The only site that could receive discharges from Ventura County MS4s that has recent percent cover observations is on Triunfo Creek at Kanan Road, which is downstream of Westlake Lake. At this site, no observations of mat algal percent cover greater than 60% or floating algal cover over 30% were recorded since 2006 (though observations do not appear to have been made in 2007 and 2008). These data do not support requiring allocations in this Draft TMDL for Ventura County MS4s since the only monitoring site downstream of Ventura County MS4 discharges with recent observations is meeting the 2003 Nutrient TMDL algal percent cover targets.

Given that a TMDL already exists that assigns nutrient WLAs to the Ventura County MS4s, the majority of the Ventura County MS4 discharges pass through one or more dams prior to being discharged to the main stem of Malibu Creek, and no information has been provided that demonstrates a linkage specifically between the Ventura County MS4 discharges and benthic impairments, we request that the Ventura County MS4 WLAs for nutrients be removed from this Draft TMDL or replaced by the WLAs included in the 2003 Nutrient TMDL. Further justification for this request is included in Section 2.

2 THE NUTRIENT TARGETS AND ALLOCATIONS SHOULD BE REMOVED OR SET EQUAL TO THE 2003 NUTRIENT TMDL TARGETS AND ALLOCATIONS

A TMDL to address impairments due to excessive algal growth due to nutrients is already in effect in the Malibu Creek watershed (2003 Nutrient TMDL). The Draft Benthic TMDL provides a number of analyses to justify the inclusion of lower, year round targets and allocations for nutrients. However, we feel that the arguments are not justified and a linkage to discharges from Ventura County MS4s has not been provided. The following arguments demonstrate that:

1. The Draft TMDL targets established in the 2003 TMDL are not yet met and therefore it is too soon to determine additional reductions are necessary.
2. The Draft TMDL does not establish clear linkages between BMI impairments, algal percent cover or algal biomass, or nutrients.
3. The use of the NNE analysis to justify the need for lower targets and allocations was technically flawed.
4. The calculation of allocations based on reference conditions does not present sufficient information to justify lower allocations and does not account for natural conditions in the watershed.
5. The basis for including winter season and particularly wet weather allocations has not been demonstrated, particularly for Ventura County MS4s whose discharges are unlikely to have significant impacts on the main stem of Malibu Creek and Malibu Lagoon.

2.1 The Draft TMDL Incorrectly Evaluated Whether The Summertime Target From The 2003 Nutrient TMDL Is Too Lenient To Control Algal Coverage.

The Draft TMDL justifies revising the nutrient targets for Malibu Creek Watershed by concluding that the Total Nitrogen (TN) allocations in the previously adopted 2003 Nutrient TMDL were too lenient, and are preventing attainment of algal percent cover targets. Comment 12-8

> *"Strong evidence indicates that the nutrient targets established in the 2003 TMDL have mostly been met; however Busse et al's (2003) study and the overwhelming data on the algae and macroalgae coverage in the streams and mainstem since the 2003 TMDL suggest that the assimilative capacity was substantially overestimated."* (Draft TMDL, p. 10-10)

Necessary support for this argument is evidence that the nitrogen allocations from the 2003 TMDL have already been achieved in the watershed; otherwise, there would be no basis for concluding that the 2003 allocations were inadequate. The information presented in the Draft TMDL to justify revised targets is presented in Sections 7.5.1 and 8.3. The Draft TMDL mistakenly refers to the summer N target from the 2003 Nutrient TMDL as a nitrate-plus-nitrite (NO3/2) target (the 2003 target was for TN)[1], and then proceeds to develop an argument as follows:

1. If NO3/2-N is typically below 1 mg/L at a particular site(s), (and thus the 2003 TMDL target is being met), and
2. algal coverage exceeds its target in the same locations, then
3. the TN target from the 2003 TMDL was not strict enough, and lower targets are needed to drive algal mat percent cover lower.

The Draft TMDL's rationale for revising the nutrient targets falls apart at all three levels, as follows:

1. The Draft TMDL uses the wrong kind of nutrient data to evaluate the first part of the argument. The Draft TMDL is incorrect in asserting that the TN targets from the 2003 TMDL are generally met. Inspection of available TN data does not reveal that the 2003 TMDL's summertime target of 1.0 mg/L is generally met in the watershed.
2. Percent cover data is presented in the Draft TMDL for (apparently) only three sites in the watershed, and is inadequate evidence that the 2003 TMDL's algal coverage target is exceeded at non-reference sites. In addition, no algal coverage data from reference sites *within* the Malibu Creek Watershed are presented.
3. Paired TN and algal coverage data are not presented or evaluated, so the Draft TMDL has not determined whether particular TN levels (high or low) are associated with particular degrees of algal coverage (high or low).

More information about the flaws in the Draft TMDL's argument is presented below.

---

[1] The Draft TMDL mischaracterizes the 2003 TMDL target as being for nitrate+nitrite throughout the document.

2.1.1 *The Draft TMDL makes its argument for revising nutrient targets using the wrong N target.*

The summer N target from the 2003 TMDL was for Total Nitrogen, not NO3/2-N. The adequacy of the previous TMDL target for nitrogen has to be evaluated using Total Nitrogen data, not nitrate data. If TN data are consulted, it becomes apparent that the summer N target from the 2003 TMDL is not being "mostly met".

Only two monitoring programs described in the Draft TMDL monitored for all three constituents that allow calculation of TN (nitrate, nitrite, and TKN) in receiving water; the Malibu Creek Watershed Monitoring Program (MCWMP) and the LACDWP MS4 Mass Emission site monitoring. In Table 7-8 of the Draft TMDL, median TN concentrations are presented for six "selected stations" from the MCWMP (the program uses 13 sites).[2] The table in the Draft TMDL appears to imply that the majority of sites in the watershed have summer TN values less than 1.0 mg/L, because this appears true for 4 out of 6 of the sites included in the table. In Table 1 below, summer mean and median TN concentrations are provided for all 13 of the MCWMP sites, plus the LACDWP MS4 Mass Emission site. Median TN concentrations for 10 out of 14 sites exceed the 2003 TMDL target for TN during the summer.

In addition, according to Section 7.5, nutrient concentrations at monitoring stations on Malibu Creek are characterized by excursions above the summer and winter nutrient targets from the 2003 Nutrient TMDL.

[2] The summer median value for Site CC (0.06 mg/L) is an order of magnitude lower than the median value obtained by this commenter using MCWMP data. USEPA should check the median for this site.

Table 1. Mean and median concentrations of total nitrogen (TN) for the summer season (Apr. 15-Nov. 15) for all available sites where total nitrogen has been measured. With the exception of SO2, all data are from the Malibu Creek Watershed Monitoring Program (MCWMP).

Site	Description	Sample Size	Mean TN (mg N/L)	Median TN (mg N/L)
	Sites in LA County			
SO2	LA County MS4 Mass Emissions Site(1)	--	1.89	1.65
CC	Cold Creek(2)	14	0.61	0.57
LC	Liberty Canyon Creek(2)	18	2.77	1.75
LIN1	Lindero Creek, upstream from Lake Lindero(2)	15	1.47	1.41
LIN2	Lindero Creek, downstream from Lake Lindero(2)	14	2.11	1.94
LV2	Las Virgenes Creek(2)	18	3.49	3.67
MAL	Malibu Creek(2)	18	0.76	0.64
MED2	Medea Creek(2)	16	0.78	0.72
RUS	Russel Creek(2)	14	2.93	2.69
TRI	downstream from Westlake(2)	15	1.40	1.44
	Sites in Ventura County			
HV	Hidden Valley Creek, drains into Lake Sherwood(2)	2	13.28	13.28
POT	immediately upstream from Westlake(2)	1	1.44	1.44
	Sites on border between Ventura and LA counties			
LV1	Las Virgenes Creek(2)	18	1.58	1.49
MED1	Medea Creek (upstream from Malibou Lake)(2)	16	1.73	0.88

(1) Values for SO2 are from Table 7-9 in draft TMDL, summer values for 2005-2011.
(2) Data were collected April 2005-Nov 2006.

2.1.2 Nitrate data cannot be used as a proxy for TN data to evaluate whether conditions in the watershed are meeting the previous TMDL target for N

In absence of TN data, the Draft TMDL makes liberal use of data for NO3/2-N and inorganic-N to make inferences about presumed linkages between algal cover and total nitrogen concentrations, or to infer spatial or temporal patterns in TN concentrations. The use of nitrate as a proxy for TN is unwarranted and misleading. It is possible to compute the ratio between TN and NO3/2-N using data from the MCWMP. Ratios for all available samples for all 13 sites in the program are presented in Figure 1. As is evident from Figure 1, the proportion of TN accounted for by NO3/2-N is highly variable within sites, between sites, and within seasons. TN exceeds NO3/2-N by factors ranging from just over 1.0 to over 100. Based on this data, there is no justification for using NO3/2 data to evaluate whether the 2003 TMDL summertime targets for TN have been attained in the watershed, and no justification for alleging spatial trends or temporal trends in TN using nitrate-N or inorganic-N.

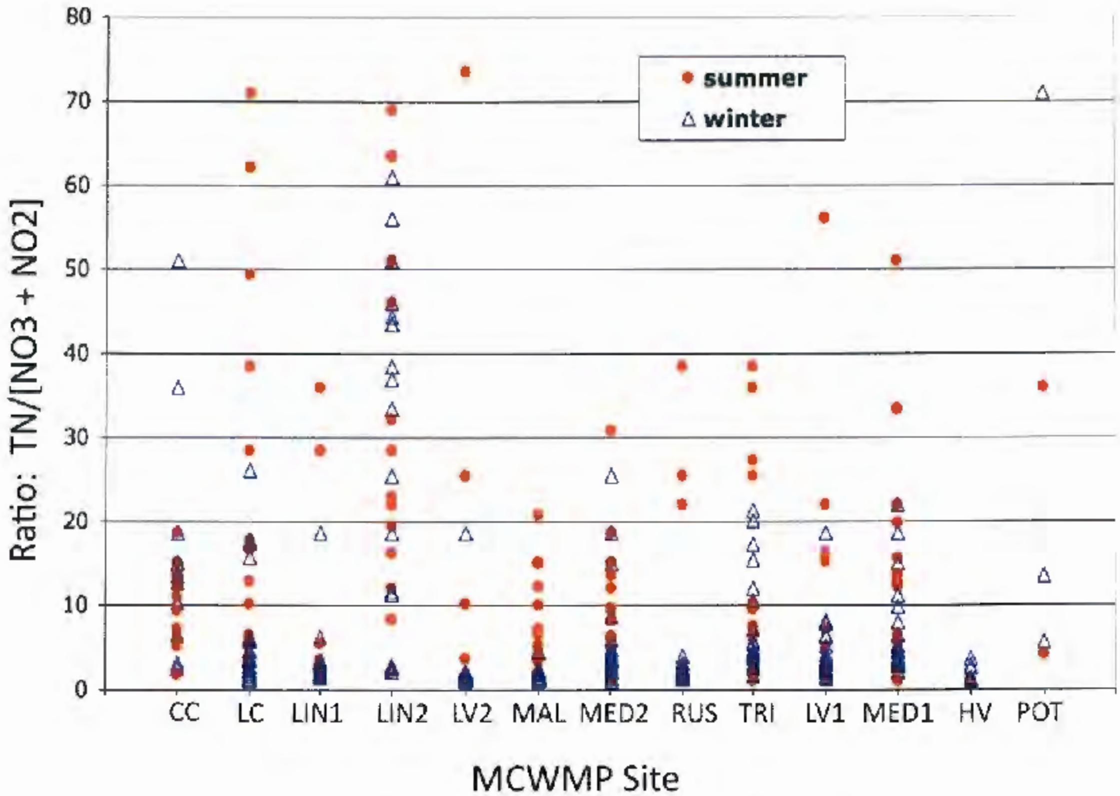


Figure 1. Ratios between Total Nitrogen (TN) and [Nitrate+Nitrite]-N at MCWMP monitoring sites in the Malibu Creek Watershed. Data were collected between February 2005-February 2007. Summer values are for samples collected Apr. 15-Nov.15; winter values are for samples collected Nov. 16-Apr.14. The four sites on the right side of the figure (LV1, MED1, HV, and POT) are in Ventura County or at the border between Ventura and Los Angeles counties. Two ratios were >80 and are not indicated in the graph: 109 for LIN2 on 9/9/05, and 376 for LC on 5/9/06.

2.1.3 The Draft TMDL does not demonstrate that nitrogen concentrations below the 2003 TMDL target are associated with algal percent cover exceedances.

As discussed in more detail above, colocated and concurrently collected data for TN and algal percent cover are not provided for any sites in the watershed (for either season), but are necessary to argue that TN concentrations below the 2003 Nutrient TMDL target are resulting in percent cover exceedances. Additionally, the excel file obtained from USEPA does not include TN concentrations (only nitrate) for comparison to the algal percent cover observations. Owing to the inability to treat nitrate-N as a proxy for TN, it is not sufficient to compare nitrate-N to percent cover data.

2.2 The Draft TMDL Does Not Provide Sufficient Linkage Between Nutrient Concentrations and BMI Impairments

Comment 12-9

The stressor analysis that was conducted to determine that elevated mat algal coverage resulting from excess nutrients as a major stressor causing impairment to the BMI communities in Malibu Creek fails on several counts as outlined below.

2.2.1 The Linkage Between BMI Impairments and Mat Algal Coverage and Nutrient Concentrations is Missing

The Draft TMDL authors cite elevated mat algal coverage resulting from excess nutrients as a major stressor causing impairment to the BMI communities in Malibu Creek. This linkage fails on several counts.

The Draft TMDL authors cite Luce (2003) results that there was no significant correlation of IBI scores with macroalgal cover, but still conclude that macroalgal cover as a contributing factor to low IBI scores. Luce (2003) also found that IBI scores significantly *increased* with microalgal cover (e.g., periphytic diatoms), which further contradicts the Draft TMDL linkage between nutrients, algae and BMI metrics in Malibu Creek. The Draft TMDL authors also acknowledge there is… "*almost no correlation between algae coverage and either inorganic N or inorganic P concentrations (Figure 8-21). Notably, 100 percent cover can occur at the lowest inorganic nutrient concentrations, while low cover is often found at high inorganic nutrient concentrations.*" Given the lack of correspondence between nutrient concentrations and algal mat coverage, or between increased algal coverage and decreased IBI scores, there can be no expectation that lower nutrient targets would result in less algal mat coverage, or a consequent increase in O/E or IBI scores.

The Draft TMDL linkage between algae and BMI metrics is based solely on co-occurrence of lower SC-IBI scores with elevated benthic algae coverage at non-reference sites. This evaluation ignores the fact that differences in O/E scores (which are more appropriate metrics than IBI scores for Malibu Creek) are better explained by their relationship to the Modelo formation than by mat algae coverage, nutrient concentrations, upstream imperviousness, or conductivity (see figures 8-12, 8-13, and 8-17 below). Note that although the Draft TMDL characterizes Las Virgenes Creek site HtB-LV-9 as a Modelo formation site, it is located at the upper edge of the formation and receives most of its flows from drainage above the Modelo formation. As a result, it may or may not be significantly influenced by the Modelo formation. Similarly, the Triunfo Creek location (TR-17) is characterized as a non-Modelo site, but receives much of its flow from the upstream Modelo formation drainage (Figures 4-4 and 7-1 of the Draft TMDL). When the BMI metrics are evaluated based on the contributing drainages for the sites, the relationships between these metrics and the Modelo formation influence become clear and are more congruent than the relationships with nutrients, conductivity, or percent imperviousness.

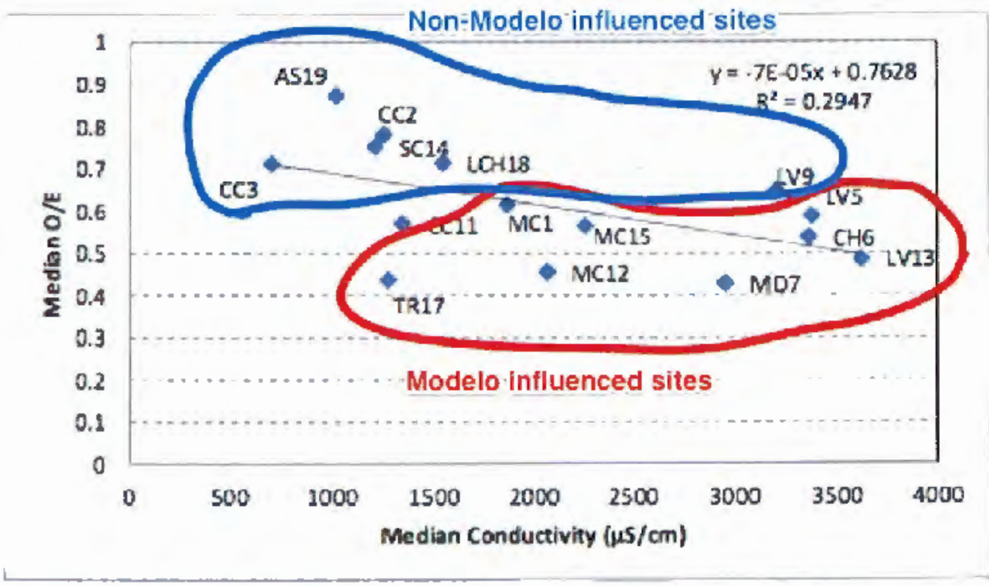


Figure 8-12. Correlation of Median O/E Scores with Median Conductivity.
Note: Sites with at least 5 observations, 2000 – 2010. Median shown for MC-1 combines LVMWD R-4 samples; median shown for MC-15 combines LVMWD R-13 samples.

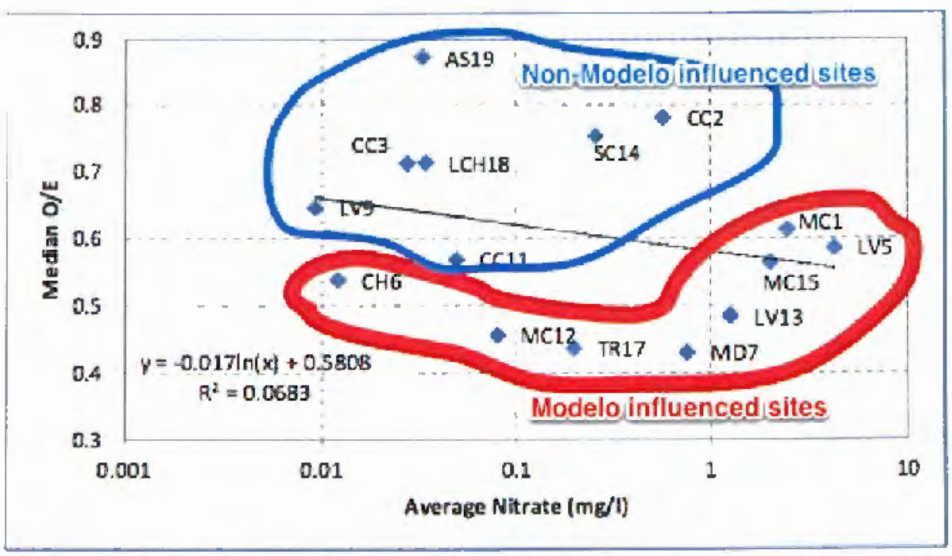


Figure 8-13. Correlation of Median O/E Scores with Average Nitrate-Nitrogen Concentration.
Note: Sites with at least 5 observations, 2000 – 2010. Median shown for MC-1 combines LVMWD R-4 samples; median shown for MC-15 combines LVMWD R-13 samples.

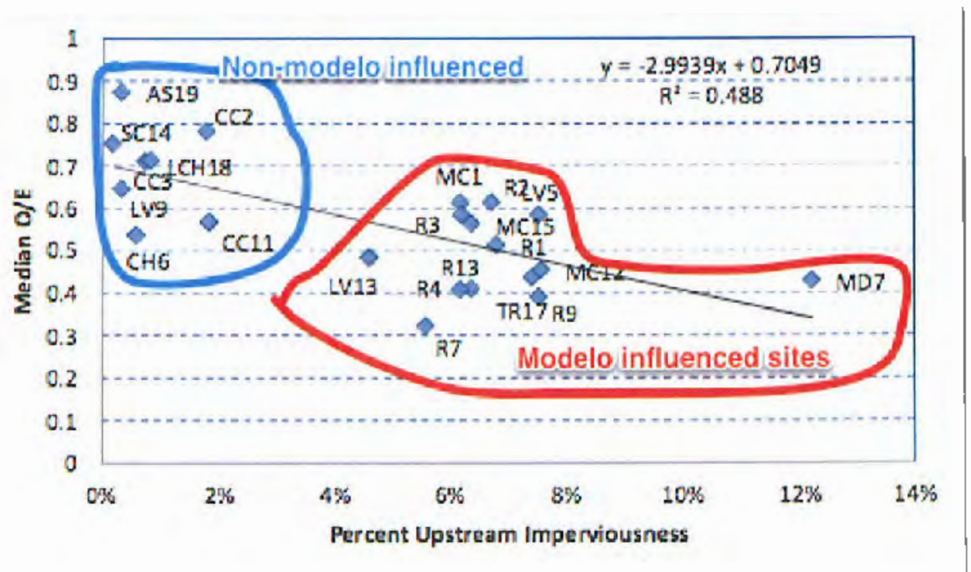


Figure 8-17. Correlation of Median O/E Scores with Percent Upstream Imperviousness.
Note: Sites with at least 5 observations, 2000 – 2010. Median shown for MC-1 combines LVMWD R-4 samples; median shown for MC-15 combines LVMWD R-13 samples.

2.2.2 The Stressor Analysis contains inconsistencies and fails to consider other influences that could be having more impact than nutrients

In addition to the absent linkage between benthic algal coverage and BMI metrics, we are concerned with the stressor analysis that was conducted to determine nutrients are causing or contributing to benthic impairments.

First, the stressor analysis is primarily based on the SC-IBI scores. As will be discussed later in these comments, the SC-IBI is not considered suitable for the evaluating impairment. The Draft TMDL does provide an assessment of impairments based on both the SC-IBI and the O/E. However, as acknowledged in the Draft TMDL, the findings based on these two methods conflict. The O/E results do not "complement" the IBI as stated in the Draft TMDL – they suggest a *different* interpretation, i.e., that Malibu Creek benthic communities are less impaired than suggested by the SC-IBI. Although the O/E results are still imperfect, they likely represent a better characterization of Malibu Creek watershed conditions than the SC-IBI. Therefore, the O/E scores should take precedence over the SC-IBI scores. No analysis is provided to allow assessment of whether the watershed would continue to be impaired if the O/E analysis was used to assess impairment or whether the stressor analysis would have generated different results if the O/E scores were used.

In addition, the Draft TMDL dismisses or fails to consider other potentially significant limiting factors. Related to the influence of the Modelo formation, the authors found that… "sulfate acute and chronic standards were exceeded in approximately half of both the wet and dry samples." The authors cite analyses of Brown and Bay (2005) suggesting that sulfate and other dissolved salts (naturally elevated in drainage from the Modelo formation) were the likely cause of observed dry and wet weather toxicity, but do not conclude this was a significant stressor on BMIs. Elsewhere, the authors link benthic impairment to upstream development and urban runoff, but do not consider the potential effects of pyrethroid pesticides in runoff from urban and residential area. These pesticides have been demonstrated to cause significant sediment toxicity in urban creeks (Weston 2010[3], 2005[4]) and although other urban source pesticides are considered and largely dismissed in the Draft TMDL, pyrethroid pesticides are not specifically considered at all.

Additionally, the Draft TMDL dismisses the impact of invasive species on the IBI scores because the impacts do not have a temporal relationship (i.e. the lower IBI scores were present prior to the observation of invasive species). However, invasive species are known to have significant impacts on the biological communities in a waterbody. As discussed in the SWRCB's workshop on biological objectives on January 23, 2013, reference sites known to have invasive species have been excluded from inclusion in the reference network as these species can confound evaluation of the biological results. Although invasive species may not have been present at all times when low IBI scores were observed, the current presence of invasive species could be contributing to the current biological community health and could be masking any improvements that have resulted from implementation of the 2003 Nutrient TMDL.

Finally, on page 2-7, the Draft TMDL states that the source of impairment in the Malibu Lagoon is hydromodification. If hydromodification is the basis for the impairment in the Lagoon, the impairment should be addressed by assigning the listing to Category 4c on the 303(d) list, and a TMDL should not be developed. The stressor analysis identifies hydromodification as a source of impairment, and the linkage between hydromodification and BMI impairment is stronger than the linkage between BMI impairment and algae or nutrients.

The stressor analysis also includes a number of inconsistencies and confusing statements that bring into question the conclusions of the analysis. On page 9.1.2, the analysis states that "for a causal pathway to be considered complete, a source must be present and linked to a stressor, which must then be linked with the resulting impairment." We feel that a number of the analyses presented do not provide this complete pathway or present conflicting statements. As a result, we feel Section 9 should be revisited to clarify and correct the inconsistencies and include further analysis of stressors as identified above. Some examples of these conflicting statements are summarized below.

- Page 9-10-"However the biological gradient evidence is weak, because the physical habitat scores are generally acceptable and do not appear to correlate with the SC-IBI scores. Evidence from the literature supports sedimentation as a plausible, but not specific stressor resulting in benthic macroinvertebrate community impairment. Other stressors elicit similar responses. No evidence is available to support predictive performance. Over the consistency of evidence for sedimentation causing biological impairment to Malibu Creek is most consistent." How do weak evidence relating to IBI scores, general literature information with no watershed specific evidence, and no evidence for predictive performance lead to sedimentation being a likely stressor? It appears the only basis for this conclusion is excess sedimentation being observed by Heal the Bay's Stream Walk observations that occur spatially with the impairment.

---

[3] Weston, D.P., and M.J. Lydy, 2010. Urban and Agricultural Sources of Pyrethroid Insecticides to the Sacramento-San Joaquin Delta of California. *Environmental Science and Technology* 44:1833–1840.

[4] Weston, D.P., R.W. Holmes, J. You, and M.J. Lydy. 2005. Aquatic toxicity due to residential use of pyrethroid insecticides. *Environmental Science and Technology* 39:9778-9784

However, this data is not provided for review and the methods for making the observations are not discussed.

- On page 9-17, most of the discussion regarding toxicity concludes that there is no linkage or weak linkages to toxicity being a stressor. However, the concluding sentence of the paragraph states that "Most of the evidence is consistent with toxicity as a causal factor of benthic macroinvertebrate impairment, and any inconsistencies can be explained by a credible mechanism." Then, later in the Draft TMDL, toxicity is eliminated from the possible causes. Also, the discussion in this section just focuses on selenium and sulfate when other possible sources of toxicity are discussed in other portions of the document. If other possible sources of toxicity were evaluated here, would the linkages change (i.e. the conclusion that the biological gradient is weak because reference sites also have high conductivity?). In general, the discussion of toxicity seems to be inconsistent throughout the document and therefore the conclusions of the stressor analysis regarding toxicity are unclear.

- On page 9-20, the Draft TMDL states "the strength of evidence supporting the causal pathway between increased sedimentation and reduced habitat quality leading to biological impairment is strong." This seems to contradict the statement on page 9-10 quoted above and the technical analysis in the Draft TMDL that the "biological gradient evidence is weak" for sediment. This statement is repeated again on page 9-21 and 9-22 under B2. Channel Alteration for Malibu Creek and Malibu Lagoon respectively and on page 9-26.

- On page 9-27, the third paragraph discusses the relationship between toxicity and urban runoff. The concluding sentence does not seem consistent with the information provided in the paragraph. The paragraph states that evidence is "incompatible", "inconsistent", and "weak" and the exposure pathway is incomplete. Yet the concluding sentence states that "The evidence supporting the relationship between urban runoff and increased toxicity is consistent". The concluding sentence should be modified to state there is not a relationship based on the evidence if the previous statements in the paragraph are correct.

- The Table on page 9-3 summarizing the results of the analysis does not seem to reflect the text or the results. For example, the same score (+) is given to all of the considerations for A1. Reduced Habitat from Sedimentation. However, the information provided for each consideration is different, with some indicating insufficient or incomplete information while others indicate clear relationships. As a result, they should not be all given the same score. The same situation occurs within the evaluation of A3. Reduced DO from Excess Algal Growth or Oxygen-Demanding Wastes. Additionally, how is a score of +++ given to Consistency of Evidence for B1. Altered Hydrology when none of the scores above are higher than + other than the literature analysis? Finally, the summary in this table does not seem to match the conclusions of the stressor analysis that were used as the basis for the Draft TMDL. For example, the Table lists toxicity as the only stressor with "actual evidence" of impacts to benthic communities.

Finally, we have concerns about the methodology utilized to conduct the stressor analysis. It is our understanding that EPA utilized existing causal assessment tools, specifically the Causal Analysis/Diagnosis Decision Information System (CADDIS). It is important to acknowledge that the same Technical Team assembled by the SWRCB to develop the scoring tools for the Biological Objectives also conducted a pilot study to evaluate the efficacy of using the CADDIS causal assessment tool to identify causes of suspected BMI impairments in California. Their overarching conclusion was that for streams exposed to chronic and systemic stressors, CADDIS was only marginally useful in being able to rule out potential causes, and was wholly inadequate in identifying the causes of BMI impairments.[5] As a result, the Draft TMDL's reliance on this approach to determine that lower concentrations of nutrients are required is premature.

2.2.3 The Draft TMDL relies on potentially unmeaningful percent cover data to support its designation of nutrients as a stressor for benthic invertebrates.

Percent cover data, as currently generated in California, is not a meaningful metric for evaluating the extent or nature of benthic algal colonies, and by extension, effects on benthic invertebrates. By relying on percent cover data from Heal the Bay (and by reference, to information in a report prepared for Heal the Bay by Luce and Abramson (2005),and in Busse et al. 2003), the Draft TMDL fails to provide evidence that benthic algae occurs at levels in the Malibu Creek Watershed that would influence benthic invertebrate community composition.

There is no official or standardized method for generating scores for percent cover of benthic algae for stream sites in California. The California Surface Water Ambient Monitoring Program (SWAMP) SOP for collecting stream algae samples[6], provides a scheme for characterizing the presence and thickness of microalgae (e.g., diatom films) at positions along sampling transects, and presence (but not thickness) of macroalgae (e.g., filamentous forms like *Cladophora*), but provides no recipe for converting the scores obtained during point/intercept transects into aggregate site percent cover values that are quantitatively or ecologically meaningful.

Specifically, the SWAMP SOP (and associated official field form[7]) merely requires the field crew to indicate presence or absence of *macro*algae (e.g., filamentous algae) at several points in the stream, and to assign one of several codes related to *micro*algae (e.g., diatoms) as shown in Figure 2 and Figure 3. Procedures for assigning an overall percent cover score

---

[5] Science Advisory Group Meeting. October 17, 2013. Technical Team Causal Assessment Update Presentation. http://www.waterboards.ca.gov/plans_policies/docs/biological_objective/101712_meeting/four_caddis_overview.pdf

[6] Fetscher, A.E., L. Busse, P.R. Ode. 2010. Standard Operating Procedures for Collecting Stream Algae Samples and Associated Physical Habitat and Chemical Data for Ambient Bioassessments in California. SWAMP Surface Water Ambient Monitoring Program Bioassessment Procedures 2010.

[7] Available at http://swamp.mpsl.mlml.calstate.edu/resources-and-downloads/database-management-systems/swamp-25-database/templates-25/field-data-sheets#BAFieldData, accessed January 17, 2013.

for benthic algae for the sampling reach are left entirely to the discretion of the investigator. There is no SWAMP protocol for converting the information from the field form into a site-based metric for percent cover of any kind, much less one that is ecologically meaningful.

In practice, it is not uncommon for investigators using the SWAMP SOP to generate a percent cover score for a whole sampling reach by counting transect positions that received any one of the SWAMP codes 1-5 for microalgae, and/or a code of "P" (for "present") for macroalgae, and then dividing the resulting number of benthic algae "hits" by the total number of positions evaluated in the sampling reach. In other words, substrates colonized by inches-thick layers of diatoms would contribute equally to a percent cover score as substrates that feel "slimy", but have no visible algae. In addition, positions occupied by a foot-thick mattress of filamentous algae would contribute equally to a percent cover score as positions where a single strand of filamentous algae drifts back and forth in the current below the measuring tape.

Using this common approach, a reach could technically receive a 100% cover score for microalgae if the rocks or other substrates encountered at transect positions all "felt slimy", but had no visible algae! Clearly, this is an inadequate measure of the potential for beneficial use impairment, as stream surfaces are naturally colonized with micro- and macroalgae to some extent in even the most pristine conditions.

The same issues apply to the determination of percent floating algae; any thickness of floating algae encountered at a transect point is commonly assigned an equivalent and indiscriminant "present" score. Consequently, a 100% cover score for floating algae for a site could indicate that the sampling reach was uniformly covered by a stationary, thick, suspended mat of filamentous algae, or that thin wisps of algae happened to drift over the measurement point while the investigator was looking down at the substrate.

None of the customary procedures for deriving site values for percent cover (regardless of whether the data were obtained using the SWAMP field data form, or EPA or State draft protocols that preceded the SWAMP SOP) would produce percent cover values that are consistent with the type of coverage targets in the 2003 Nutrient TMDL, which dictated that percent cover of floating algae be determined on the basis of algal filaments > 2 cm *in length*, and that bottom algal coverage be determined on the basis of "diatoms and blue-green algae mats" > 0.3 cm in thickness, expressed as seasonal means. Note that the second criterion most closely resembles the "3" category in the SWAMP scheme, and yet it is common practice to include transect scores as low as "1" when computing percent cover.

Table 4
Microalgal thickness codes and descriptions (adapted from Stevenson and Rollins 2006).

Code	Thickness	Diagnostics
0	No microalgae present	The surface of the substrate feels rough, not slimy.
1	Present, but not visible	The surface of the substrate feels slimy, but the microalgal layer is too thin to be visible.
2	<1mm	Rubbing fingers on the substrate surface produces a brownish tint on them, and scraping the substrate leaves a visible trail, but the microalgal layer is too thin to measure.
3	1-5mm	
4	5-20mm	
5	> 20mm	
UD	Cannot determine if a microalgal layer is present	
D	Dry point	

Figure 2. The Scheme for Scoring Microalgae in the SWAMP Algae Protocol.

Transect Substrates										
Position	Dist from LB (m)	Depth (cm)	mm/ size class	% Cobble Embed.	CPOM	Microalgae Thickness Code	Macroalgae Attached	Macroalgae Unattached	Macrophytes	**Microalgae Thickness Codes** 0 = No microalgae present, Feels rough, not slimy; 1 = Present but not visible, Feels slimy; 2 = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail. 3 = 1-5mm; 4 = 5-20mm; 5 = >20mm; UD = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code). D = Dry, not assessed
Left Bank					P A		P A D	P A D	P A D	
Left Center					P A		P A D	P A D	P A D	
Center					P A		P A D	P A D	P A D	
Right Center					P A		P A D	P A D	P A D	
Right Bank					P A		P A D	P A D	P A D	
	Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred)									

Figure 3. Portion of SWAMP stream habitat characterization form (dated Jan. 9, 2012) for recording point-intercept scores for presence/thickness of microalgae and presence (but not thickness) of macroalgae. Form contains no standardized procedure for converting data to an overall percent cover score

The only percent cover data the Draft TMDL presents is from Heal the Bay, from a total of three sites from the Malibu Creek watershed, as follows:

Table 8-13: 5-year averages for percent cover for floating and mat algae for 2 sites (Sites 1, 12)

Figure 8-18: Time series of floating algae percents for Sites 1 and 12

Figure 8-19: Time series of algal mat coverage for Sites 1 and 12

Figure 8-20: Box plots for 5 sites (time frame not revealed); 3 sites in the Malibu Creek watershed (Sites 1, 12, and 15) and 2 sites outside of the Malibu Creek watershed (Sites 14 and 18)

Figure 8-21: Scatter plots with inorganic N or inorganic P on the x-axis and mat algal coverage on y-axis (with no indication of the sites or years included)

No source is cited for the data (report, website, methodology) that would allow a critique of the methodology used to generate the data (was it visual estimation or point-intercept? were all thicknesses or lengths treated equally? did the procedures produce percent cover data that match the definition in the 2003 Nutrient TMDL? are the data meaningfully interpreted as a proxy for benthic invertebrate impairment?). We have reason to believe that the Heal the Bay data were obtained using visual estimates. If true, the data are subjective, not truly quantitative, not suitable for comparing to TMDL targets, and should not be used as evidence for impairment of benthic invertebrate habitat.

In the section of the Draft TMDL where percent cover data from Heal the Bay is presented, the Draft TMDL also discusses a report prepared by Luce & Abramson (2005), who apparently performed statistical analysis of percent cover data from Heal the Bay sites, and related it to nutrient concentrations. However, the methods description in this report indicates that the field work was not conducted using SWAMP-comparable procedures, that the percent cover values were assigned irrespective of the magnitude (i.e., thickness or length) or taxonomic nature (macro- or micro-algae) of benthic algae, and that the data are not compatible with the targets as specified in the 2003 Nutrient TMDL:

> *"Algal Cover Survey*
> *We conducted monthly line-intercept surveys for periphyton cover at each site at the time of water chemistry sampling. In these surveys, we did not distinguish between macroalgal periphyton and the diatom layer (diatoms). We stretched a tape measure across the wetted width of the stream along two separate transects that represented periphyton conditions at the site. For each transect we recorded the length that had macroalgal or diatom cover and calculated a percent cover, then averaged the two measurements."* (Luce & Abramson 2005, p. 6)

and later, for semi-annual surveys:

> *"We recorded presence of macroalgal and diatom cover separately at each point across the transect, and calculated the proportion of points that had cover, to obtain the percent cover of each type of algae...We measured areal cover of macroalgae and diatoms rather than biomass, so we did not distinguish between thin and thick covers of periphyton."* (p. 7-8)

Finally, we understand from conversations with USEPA staff that percent cover data in Busse et al. (2003) was influential in the conclusion that percent cover targets are not being attained in the watershed since the 2003 TMDL was adopted. This would not be a logical approach, because the data were collected prior to the adoption of the 2003 TMDL, and do not bear upon arguments related to the suitability of the nutrient targets in the 2003 TMDL. In addition, the percent cover data tabulated in Busse et al. (2003) (which is not presented in the Draft TMDL or discussed in detail) is also not consistent with the targets defined in the 2003 Nutrient TMDL, is categorized using single genera of algae, and is not stratified into thickness or length categories.

2.2.4 The Draft TMDL fails to determine that nutrients are related to percent cover of algae

The Draft TMDL fails to make the case that TN and TP are related to percent cover of algae in the Malibu Creek Watershed. The Draft TMDL appears to "pick and choose" pieces of information about percent cover and nutrients to make the case that there is a direct relationship, in almost an anecdotal fashion. For example, in one place the Draft TMDL will describe spatial patterns in nutrients, generally speaking (e.g., in the "trends" narratives in Section 7), and in other places describe spatial patterns in percent cover, generally speaking (e.g., in Section 8), and then conclude elsewhere in the document (e.g., in the Linkage Analysis) that the disparate data sets provide evidence for a predictive relationship between nutrients and algal coverage. The only statement describing paired nutrient data (of any kind) and algal coverage data *for any particular site* is qualitative, and concerns the wrong nitrogen parameter (nitrate-N):

"Indeed, MC-12 concentrations [of nitrate-N] have not been noted in excess of the 1 mg/L target, yet mat algal coverage remains high." (Draft TMDL, p. 7-17).

The circuitous arguments in the Draft TMDL are directly contradicted by the only analysis of paired nutrient and percent cover data in the Draft TMDL. In Figure 8-21, scatterplots are presented relating inorganic N or P, and percent cover of mat algae. The scatterplots (and correlation coefficients) show no significant relationships. The ability to generate a line with any slope at all in the N vs. algae plot is likely driven by a single point anchoring the regression line in the upper right quadrant of the plot. The Draft TMDL does not provide the statistical parameters needed to indicate whether the slopes of the regressions were significantly different than zero, but inspection of the figures indicates that if even an extremely weak relationship exists, is not ecologically meaningful. The Draft TMDL acknowledges the lack of the relationship as follows, but chooses to speculate that maybe things would be different if data for TN or TP were available:

> *"An examination of all the Heal the Bay mat algae coverage data shows that there is almost no correlation between algae coverage and either inorganic N or inorganic P concentrations (Figure 8-21). Notably, 100 percent cover can occur at the lowest inorganic nutrient concentrations, while low cover is often found at high inorganic nutrient concentrations. In part, this may reflect control by light limitations and other factors; however, it also suggests that inorganic nutrient measurements may not provide a good indication of algal growth potential; instead total nutrient concentrations may be better at providing an indication of primary production"* (Draft TMDL, p. 8-36)

Speculation regarding the ability of TN or TP to predict algal biomass cover is a poor basis for establishing specific numeric targets for TN and TP to address benthic invertebrate index scores. The Draft TMDL makes other acknowledgements of a weak link between nutrients and algal percent cover in the Malibu Creek Watershed:

> *"SCCWRP (Busse et al., 2003) performed a detailed examination of algal conditions in 2001 and 2002, including measurements of benthic chlorophyll a densities, and concluded that most developed sites in the Malibu Creek watershed had chlorophyll a concentrations that "exceed suggested thresholds for acceptable levels.' At most sites, algal biomass was not limited by nutrients, but rather by light availability and water current."* (Draft TMDL, p. 8-33)

2.2.5 Benthic Algal Biomass in the Malibu Creek Watershed does not Appear to be Related to Nutrient Concentrations

Using data from Appendix F, observed concentrations of benthic algae are plotted by the corresponding water column Total Nitrogen (TN) concentrations in Figure 4. The 150 mg/m^2 benthic algae target is called out on the figure. Five of the observations are below the algae target, and these five sites correspond to water column TN concentrations spanning the entire range in the dataset (from 0.7 to 3.8 mg/L). The corresponding plot for Total Phosphorous (TP) is presented as Figure 5; sites with benthic algae less than 150 mg/m2 have water column TP ranging from less than 0.1 mg/L to greater than 0.3 mg/L. Based on the paired data for TN and benthic algal biomass collected in the Malibu Creek Watershed, there does not appear to be a relationship between benthic algal chlorophyll-*a* concentrations and water column total nutrient concentrations.

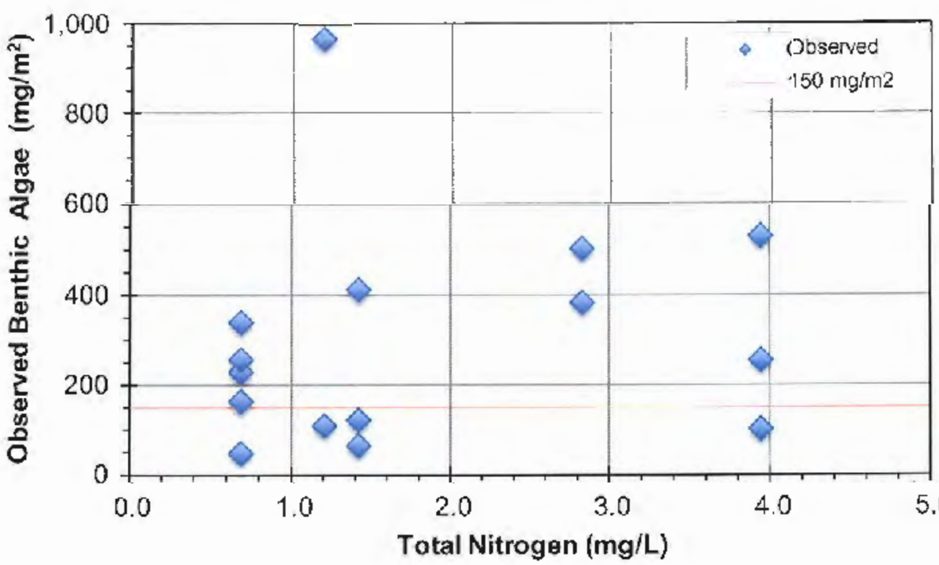


Figure 4. Measured Benthic Algae Concentration plotted at Corresponding Total Nitrogen Concentration.

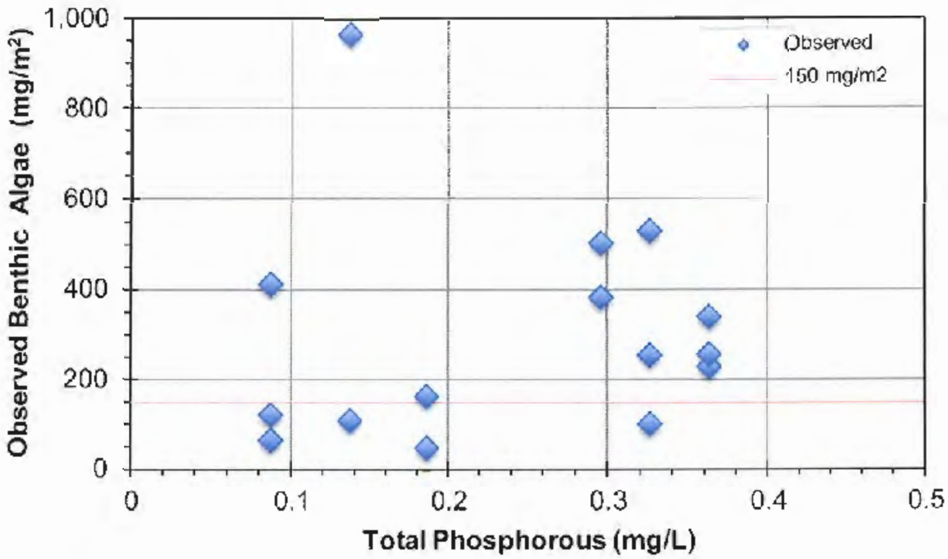


Figure 5. Measured Benthic Algae Concentration plotted at Corresponding Total Phosphorous Concentration.

Nutrients also fail to correlate to algal biomass in the watershed when algal biomass is evaluated using AFDW. Using information in Appendix F, one observes that where there is a high degree of canopy cover, the ratio of chlorophyll-a to ash free dry weight (AFDW) is higher. The pertinent data from Appendix F are plotted in Figure 6. The relationship makes sense because when there is less available light, algae produce more chlorophyll per unit mass of algae. AFDW is a more appropriate metric for algal biomass targets, because it is a measurement of the mass of algae, whereas the chlorophyll-a is a measure of the chemical used by the algae to convert light into energy. Where there is a high degree of canopy cover, the chlorophyll-a measurement may be high, but the physical amount of algae (measured as AFDW) may be acceptable.

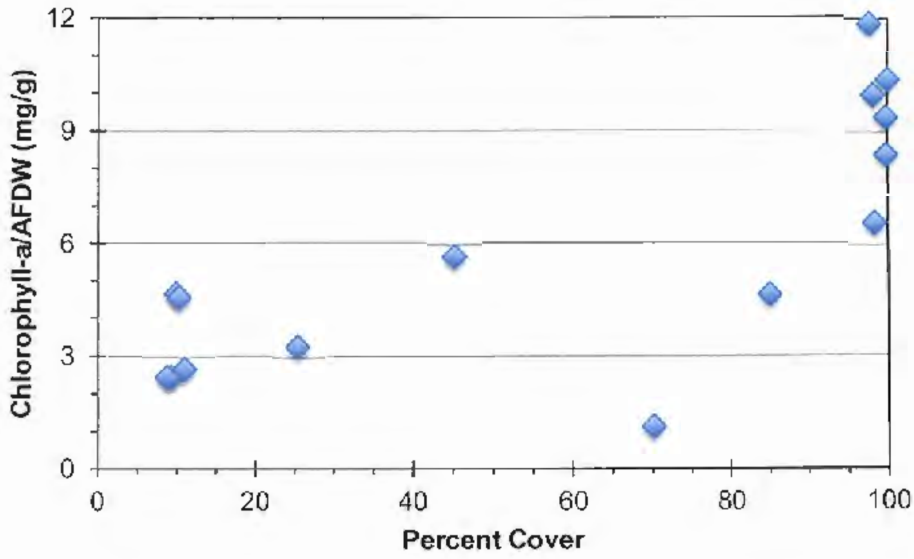


Figure 6. Ratio of Measured Chlorophyll-a to Ash Free Dry Weigh at the corresponding Percent Canopy Cover.

In Figure 7, algal biomass, as AFDW, is plotted by the corresponding water column TN concentrations for Malibu Creek Watershed using data from Appendix F. Over the entire range of measured TN, there are values for AFDW below the 60 g/m^2 target. In other words, there is no obvious relationship between water column TN and the amount of algae present.

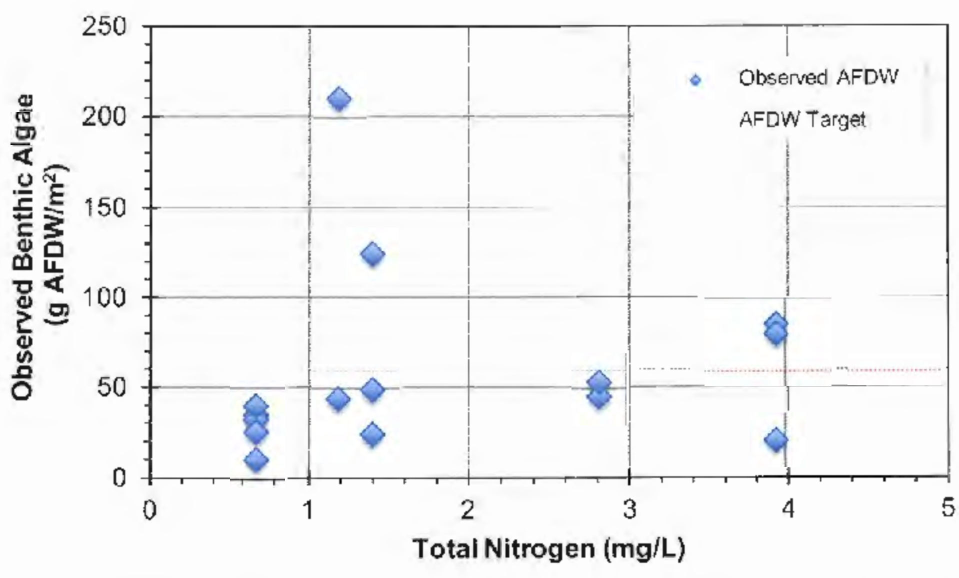


Figure 7. Benthic Algae Concentration as AFDW plotted at the Corresponding Water Column Total Nitrogen Concentration. The red line indicates the value for AFDW that corresponds to the proposed algal biomass target of 150 mg chl.-a/m2, assuming a ratio of AFDW/chl.a = 2.5.

2.3 The Analysis to Justify the Use of the NNE Tools as a Basis for Lowering the Nutrient Targets is Flawed Comment 12-10

For the Draft TMDL, it is stated that a nutrient numeric endpoint (NNE) technical document is being prepared for the Malibu Creek Watershed. The draft NNE document is listed as a reason it is necessary to set nutrient allocations lower than the 2003 Nutrient TMDL currently in effect. On page 2-3, the Draft TMDL states that a Draft NNE document specific for Malibu Creek Watershed is being developed that provides strong evidence that the nutrient limits from the 2003 TMDL should be revisited. This draft work product is also referred to on page 1-3 as follows: *"Based on this draft NNE document specific for Malibu Creek Watershed an other additional monitoring in Malibu Creek and Lagoon, there is strong evidence that the nutrient limits should be revisited."* However, the Draft NNE document is not available for review, not included in the information provided for evaluation of the Draft TMDL, and should not be used as justification for revising the 2003 numbers.

Regardless of whether a Draft NNE document is under development, the use of the NNE modeling tools as justification for requiring lower nutrient allocations is premature given that the State's Nutrient Policy is not yet developed. Additionally, we have concerns about inherent biases and other technical issues with the NNE spreadsheet tool that were used to conduct the analysis, as outlined below.

The NNE Benthic Biomass Predictor spreadsheet tool (BBT) was developed largely from the data compiled by Dodds (1997, 2002, corrected in 2006). The regressions developed by Dodds are used to calibrate the "Standard", "Revised", and "Revised with Accrual "models within the BBT. Thus the variability present in the Dodds datasets is built into all of the BBT submodels. Based on the 95% confidence interval surrounding the regression lines predicting chlorophyll-a from nutrient concentrations derived by Dodds, the 95% confidence interval associated with a chlorophyll-a "target" of 150 mg/m^2 is approximately 40 to 2,100 mg chl.-a/m^2. The observed algal biomass in the Malibu Creek Watershed ranges between 50 and 1,000 mg chl.-a/m^2. The inherent accuracy of the underlying nutrient/algal relationships incorporated into the BBT is not sufficient to determine if there are algal or nutrient impairments in the watershed (or really any watersheds). In fact, based on the poor precision of the BBT, and because the measured algal biomass in the Malibu Creek Watershed is within the BBT's 95% confidence interval for the 150 mg/m^2 prediction, the conclusion could be that the watershed is not impaired for algae.

The BBT also produces biased nutrient predictions owing to its treatment of incident solar radiation. When considering the available solar insolation, the original QUAL2K model (not the borrowed equation sets incorporated into the BBT) recognizes that not all light from the sun is available for photosynthesis. In the original QUAL2K documentation it is stated that 47% of the solar insolation is photosynthetically available radiation (PAR). The original QUAL2K model converts solar insolation to PAR when calculating algal growth. The BBT does not convert solar insolation to PAR, and are therefore flawed because they use too much light and therefore predict too much algae. The steady state equations in the BBT use the average light intensity to calculate growth, which corresponds to a condition of continuous (24-hr) light available for growth. In reality, during the night there is no light available for growth, which if accounted for in the model, would result in lower algal biomass predictions. The net result is that the BBT over estimates algal biomass, due to the flawed implementation of available light.

Another source of bias in the BBT is its treatment of temperature. The original QUAL2K model documentation notes that all temperature dependent reaction rates are modified by the Arrhenius relationship. However, even though the BBT documentation notes that respiration and death rates are temperature dependent, respiration and death rates are not adjusted for temperature in the BBT spreadsheet. The net effect is that when the water temperature is greater than 20°C, the BBT over estimates algal biomass. At 30°C, the algal biomass predicted by the BBT is double what it would be if the temperature was correctly implemented. Because of the error in BBT implementation, the predicted levels of algae are incorrect, when the temperature is not 20°C, and is the reason, for example, why the BBT models calculate a relatively low algae concentration for the Las Virgenes, Multiple 2, sun run site when the water column nutrient concentrations are high.

In addition, the models within the BBT were developed using seasonal average nutrient water column concentrations to calculate the seasonal average or seasonal maximum benthic algal concentration. Instantaneous water column nutrient concentrations, instead of seasonal average concentrations, are used in the Malibu NNE analysis to predict season maximum algal biomass, instead of seasonal average concentrations. The BBT is not being used correctly for the Malibu Creek Watershed in the NNE tool analysis.

Finally, the results of the NNE analysis in Appendix F do not accurately reflect the observed conditions in the watershed. Modeled algal biomass from Appendix F is compared to the observed algal biomass in Figure 8. In the modeling presented in Appendix F, is it stated that the ratio of chlorophyll-a to AFDW was taken into account for each individual site. In the figure, a perfect match between model and observation would result in all points plotting on the horizontal line at 1.0. At high benthic algae concentrations, the model appears to be within 50% of the measured concentrations, at lower benthic algae concentrations, the model appears to be heavily biased high. For the observations under the 150 mg/m^2 chlorophyll-a target, the BBT over-predicts the algal biomass by up to 320%. Using the BBT may indicate more impairment than is actually present in the watershed.

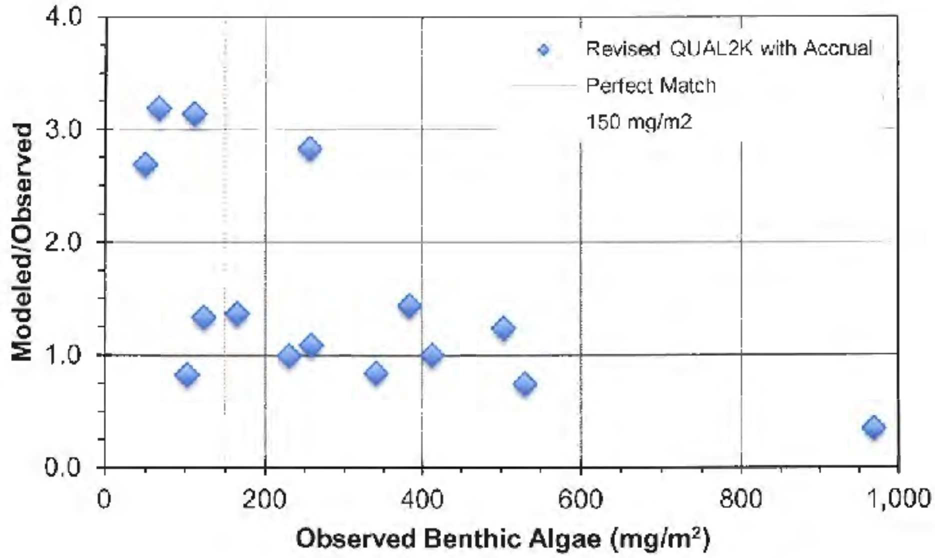


Figure 8. Ratio of Modeled Predicted to Observed Benthic Algae Concentrations Plotted to the Corresponding Observed Concentrations.

2.4 Reference Condition Calculations are Unclear and Do Not Account for Natural Watershed Conditions

Comment 12-11

The Draft TMDL lacks transparency regarding how the specific TN allocations were derived. On page 7-24, the Draft TMDL states:

"In sum, evidence to date indicate that natural reference conditions for the Malibu Creek watershed have a central tendency for the summer period of between 0.52 - 0.67 mg/L total N" (Draft TMDL, p. 7-24)

No actual explanation for how this range was derived is provided in the Draft TMDL. Inspection of Table 7-11 that accompanies this text in the Draft TMDL suggest that this range was created by pairing the Level 3 Ecoregion recommendation of 0.518 (which would round up to 0.52) and the value listed for Cold Creek (0.67). Later, on page 10-8, the Draft TMDL claims that data from nine reference sites were used to derive the TN target for the Draft TMDL, but the sites and associated data are not revealed, nor is the calculation explained. Finally, no explanation is provided for how any of this information was used to compute summer and winter TN allocations of 0.6 and 1.0, respectively. Consequently, stakeholders are unable to evaluate the appropriateness of the reference site data that was relied upon, or the calculations that were used.

Additionally, information provided in Table 7-11 shows much higher concentrations, above those currently in the 2003 Nutrient TMDL, for sites draining the Modelo Formation. Although the identified site may have some issues that make it inappropriate for consideration as a reference site, the fact that reference conditions within the Modelo formation were not considered as part of the analysis for the watershed is inappropriate. It is our understanding that other data are available that could have been evaluated to determine reference conditions. In particular, other National Park Service (NPS) water quality data were available to the EPA, but were not included in Draft TMDL analyses (see LVMWD 2011)[8]. The NPS data would have been particularly informative because of the many sites are in undeveloped headwaters.

2.5 Basis for adding wet season requirements is not justified and the allocations should remain seasonal with significantly higher numbers in the winter season Comment 12-12

In general, the Draft TMDL does not provide sufficient justification for including winter season or wet weather allocations within the Draft TMDL. The only statements we could find to justify winter allocations were in the Critical Conditions section on page 10-13 and a few references to the need for year round dry weather and wet weather targets in Section 9. Section 10 states that Malibu Lagoon is most sensitive to nutrient loads delivered during winter storms and stored within the estuary and that year round nutrient concentrations during dry weather are needed to protect the Creek. We have concerns with these statements as the Draft TMDL does not provide any evidence to justify them.

- The Draft TMDL does not lay out its evidence for wintertime exceedances of algal percent cover, or for a circumstantial relationship between algal percent cover and wintertime TN or TP concentrations. Algal percent cover data is not evaluated on a seasonal basis in the Draft TMDL, nor is there any direct comparison of TN or TP concentrations and wintertime percent cover for specific locations. As discussed previously, we were able to obtain a copy of an excel file from USEPA containing the algal percent cover data that was considered in the Draft TMDL. Precipitation data from the watershed was obtained to determine if data were collected during wet weather exceeded the 2003 Nutrient TMDL algal percent cover targets. Only two out of nine observations since 2006 have exceeded 60% during a wet event or within three days of a rain event. During the wet season, some observations were seen above the 2003 Nutrient TMDL algal percent cover targets throughout the watershed, but not in the tributaries downstream of the Ventura County MS4s.

- The Draft TMDL does not explain how in-stream concentrations of nutrients during storm runoff events impairs habitat for benthic invertebrates in the streams. In fact, on p. 8-33, winter scour is cited as reducing periphytic algae based on 20 years of data in Byron & DuPuis (2002).

- The Draft TMDL does not explain how nutrients in storm runoff that are captured by upstream lakes and reservoirs contribute to a benthic invertebrate impairment in the lagoon. As discussed previously, the dams are likely to limit the discharges from Ventura County MS4s that will reach the lagoon.

[8] Las Virgenes Metropolitan Water District (LVMWD). 2011. Water Quality in the Malibu Creek Watershed, 1971-2010. LVMWD Report #2475.00.

- By requiring that all stream reaches attain reference concentrations during wet and dry weather between Nov-Apr, the Draft TMDL does not recognize that part of the wintertime load of nutrients reaching the main stem Malibu Creek (even nutrients derived from open space) is exported to the ocean. The Draft TMDL states that:

  "Natural breaching of the Lagoon barrier would occur primarily in response to winter storms. Alterations to the hydrology of the system have affected this natural cycle. Extensive use of imported water in the basin has extended flows into the dry season, which, in conjunction with reduced storage in the Lagoon, tends to result in overtopping of the beach during the summer. To prevent flooding, mechanical breaching of the beach during summer has been used." (Draft TMDL, p. 6-10)

  "However, increased flows during the natural dry season have overtopped the beach barrier and opened the Lagoon to ocean waters. While these increased flows may help scour out accumulated sediments, the timing of the events may conflict with lagoon benthic macroinvertebrate phenology." (Draft TMDL 9-21)

  If beach overtopping is occurring during the summer, it seems reasonable to expect that water is exported from the lagoon to the ocean during wet weather. Requiring reference condition concentrations to protect the lagoon from winter loadings that do not all remain in the lagoon is inappropriate.

- The Draft TMDL does not make the case that replicating nutrient concentrations (or other conditions) from reference reaches will attain desired levels of algal percent cover. The Draft TMDL concludes that percent cover is much lower at reference sites than in the Malibu Creek main stem. However, the only data to support this conclusion in the Draft TMDL (in Figure 8-20) is for two sites that are outside of the watershed, and the data are not stratified by season. Monitoring at sites within the watershed has not occurred since 2003 according to the excel file provided by USEPA.

- The Draft TMDL does not explain what has changed since USEPA previously disputed the need for low wintertime targets in the watershed. In response to comments on the 2003 Nutrient TMDL, EPA stated:

  > "*We do not think it is appropriate at this time to impose summer time targets to the winter time because there are uncertainties associated with the 1) extent of impairment in the winter 2) the relationship between nutrient concentrations and algae in the winter and 3) the relationship between winter nutrient loads and sediment. EPA has opted to apply the existing concentration-based standard to the wintertime conditions along with a margin of safety which will result in a substantial reduction in the annual nitrogen loadings to the system. We believe that this approach is appropriate given the uncertainties noted above.* "

  None of these uncertainties have been addressed by this Draft TMDL sufficiently to justify adding winter targets at this time. As shown above, several of the uncertainties, such as the relationship between algae and nutrient concentrations, remain.

In essence, the selection of new wintertime targets in the Draft TMDL appears to be driven by a desire to impose newly available reference reach concentrations (not necessarily even from the Malibu watershed) as watershed-wide WQOs (albeit with a little "wiggle room") merely because new data are available, but not because there is compelling evidence that new, lower wintertime targets for dissolved or particulate nutrients are necessary to protect beneficial uses for benthic invertebrates in the main stem of Malibu Creek.

- The NNE Benthic Biomass Predictor Tool (BBT) is not suitable to evaluate the role of wet-weather nutrient loads on algal biomass. The BBT uses seasonal average input to calculate seasonal average benthic algal density and season maximum benthic algal density, and was built and calibrated using seasonal data from other systems. The BBT has no mechanism to model wet-weather events. As a result, the NNE analysis performed for Malibu Creek Watershed cannot be used as justification for the need for wet weather allocations.

- Other California Nutrient TMDLs for streams (with estuaries) that were recently developed following the NNE approach recognize the weak link between wet weather nutrient loads and algal-related impairment. These TMDLs assign sensible wet weather allocations to MS4 Permittees and non-point sources that are substantially higher than summer – or dry weather - allocations, and establish the wet weather allocations as limits for nitrate-N, not TN. The Salinas River nutrient TMDL[9] assigns a numeric target of 8.0 mg/L nitrate-N (expressed as a maximum of wet season samples) to all reaches during Nov.1-Apr. 30. The recently adopted Ventura River Algae TMDL[10] assigns year-round wet weather allocations for MS4 permittees, agriculture, and livestock sources of 5-10 mg/L nitrate-N, depending on the reach.

2.6 The proposed nutrient targets and allocations are unachievable with available technology Comment 12-13

The Draft TMDL proposes numeric targets for total nitrogen of 0.6 mg/L during the summer and 1.0 mg/L during the winter and total phosphorous of 0.1 mg/L year round. As discussed in Attachment C, although structural and non-structural best management practices for treatment of MS4 discharges are capable of reducing TN and TP discharges, they cannot reliably result in consistent reductions that will achieve the proposed targets and allocations under all conditions year round. In particular, achieving treatment of wet weather flows under all conditions as required by the Draft TMDL would likely be infeasible.

---

[9] California Regional Water Quality Control Board, Central Coast Region, Resolution NO. R3-2013-0008 Amending the Water Quality Control Plan for the Central Coast Basin to Adopt Total Maximum Daily Loads for Nitrogen Compounds and Orthophosphate in the Lower Salinas River and Reclamation Canal Basin and the Moro Cojo Slough Subwatershed.

[10] California Regional Water Quality Control Board, Los Angeles Region, Amendment to the Water Quality Control Plan – Los Angeles Region to Incorporate the Total Maximum Daily Load for Algae, Eutrophic Conditions, and Nutrients In the Ventura River and its Tributaries, Adopted by on December 6, 2012.

A TMDL should not be adopted that from its outset is not attainable within the limits of technology. One of the main goals of the Clean Water Act, namely the goal of fishable/swimmable waters, clearly recognizes that this goal may not always be attainable. (33 U.S.C. §1251(a)(2)(limited to "where attainable").) Thus, EPA should not adopt TMDLs that have demonstrably unattainable goals and targets as outlined in Attachment C.

3 BENTHIC MACROINVERTEBRATE TARGETS AND INSTREAM ALLOCATIONS SHOULD BE REMOVED

We feel that EPA is going beyond its authority by setting targets and allocations for BMI in the Draft TMDL. Additionally, the State Water Resources Control Board (SWRCB) is actively engaged in the development of the Biological Objectives for the State of California. The Draft Benthic TMDL sets targets and allocations for BMI that are inconsistent with and arguably contradictory to the direction in which the biological objectives process is going. While we recognize that the policy is still under development, the State has made some determinations and developed scientific information that are relevant and were not considered as part of the Draft TMDL development. These elements include:

1. The SC-IBI is not appropriate for setting biologically based objectives due to the lack of appropriate reference sites and conditions for many locations in California, including the Malibu Creek watershed.
2. The scientific advisory group for the biological objectives is currently recommending that a multi scoring tool approach be used that does not rely solely on one index (such as the O/E).
3. The science advisory group is recommending consideration of a "grey area" for setting thresholds for biological objectives within which additional data would be collected before determining whether an impairment exists.

Finally, the analysis in the Draft TMDL is based on reference conditions that do not adequately represent the conditions in the Malibu Creek watershed, particularly the presence of the Modelo formation.

Consequently, the Draft TMDL should simply remove the numeric IBI and O/E targets in the Draft TMDL and defer setting biologically based targets until the policy and an appropriate approach have been established.

3.1 Establishing BMI Targets and Allocations are Outside of EPA's Authority

Comment 12-14

We feel it is inappropriate to include targets for benthic macroinvertebrates in the Draft TMDL, since they are not pollutants as defined under the Clean Water Act. The US District Court for the Eastern District of Virginia recently ruled that EPA exceeded its authority in establishing a flow-based TMDL[11]. This case ruled that EPA cannot use surrogates in place of regulating pollutants. According to the case, EPA is charged with "establishing TMDLs

[11] Virginia DOT v. EPA, E.D. Va., No. 1:12-cv-775, 1/3/13

for appropriate pollutants; that does not give them the authority to regulate nonpollutants." The term "pollutant" is defined in the CWA as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." 33 U.S.C., § 1362(6). Benthic macroinvertebrates are not defined as pollutants by the Clean Water Act. However, there are benthic macroinvertebrate targets in the Draft TMDL and those targets are additionally assigned as instream allocations that are required to be included in the NPDES permits for dischargers. On page 10-13, the Draft TMDL states *"The biological response numeric targets for Malibu Creek and Lagoon are directly linked to the allocations and should be placed into the applicable regulatory mechanism (i.e., NPDES permit) in order to ensure that the benthic community condition achieves the water quality objectives."* As result, this Draft TMDL is inappropriately regulating nonpollutants through the inclusion of benthic macroinvertebrate targets and corresponding in-stream allocations. By extension, it is also arguable that listings for such non-pollutant based impairments are also inappropriate under the Clean Water Act. Thus, the original listing is inappropriate, and therefore improperly the subject of this TMDL.

3.2 Proposed Benthic Macroinvertebrate Targets Are Inconsistent with Science Developed for the State Bioobjectives Policy

Comment 12-15

The experts on the Technical Team charged by the SWRCB to evaluate and develop appropriate BMI tools for eventual inclusion in the SWRCB's Biological Objective Policy have independently already concluded that the SC-IBI is not appropriate for setting biologically based objectives. The SC-IBI has been determined to be not appropriate primarily due to the lack of appropriate reference sites and conditions for many locations in California. The most widespread and universal problem with the SC-IBI identified by the Technical Team and Science Advisory Group experts is that reference expectations are based on a region-wide sampling of minimally impacted locations without regard to site-specific differences in natural gradients such as slope, precipitation, watershed size, etc. In the case of the Malibu Creek watershed, the local geologic differences are expected to result in significant differences from the reference conditions utilized for the SC-IBI. In addition to the general defect regarding watershed features that are not accounted for by SC-IBI reference expectations, the SC-IBI was developed for perennial wadeable streams, while Malibu Creek is non-perennial or non-wadeable along most reaches.

Rather than using the SC-IBI or other metric, such as the O/E, independently, these technical experts have developed a multi-metric tool that utilizes a modeled estimate of reference condition based on site-specific similarities in natural gradients from a statewide database of minimally impacted locations. This metric was then combined with an observed over expected ratio (O/E). However, unlike the O/E score calculated in the Draft TMDL that estimates reference expectation based on regional minimally disturbed locations without regard to matching natural gradients, the new O/E model has been updated to be based on temperature, precipitation, elevation, and watershed area. These new scoring tools are ultimately combined into a single score for estimation of biological condition.

Additionally, the percentile threshold to be used for the new California biological objectives policy has not been decided, and the 10th percentile target included in the Draft TMDL was not specifically recommended as one of the options. Instead, the developers of the new multi-metric California Stream Condition Index approach [12] recommend a combination of some statistically defined threshold with a "gray area", which is intended to express the statistical uncertainty around the selected threshold. That "gray area" could be defined in a number of ways (see the CSCI presentation), and could be used conservatively (upper boundary) or "leniently" (lower boundary) depending on the states bias toward avoiding false negative or false positive findings of impairment. The SWRCB has not decided on whether or how to define or use this gray area concept, but the concept was not considered in the Draft TMDL. The 10th percentile is a conservative target that has not been vetted and may not be consistent with the SWRCB's approach to biological objectives.

3.3 Reference Conditions Used to Develop SC-IBI and O/E Targets are Not Appropriate for the Malibu Creek Watershed

Comment 12-16

The Draft TMDL conclusions of impairment based on the SC-IBI are based on comparisons to inappropriate and unrepresentative reference sites (Section 8.1.2). All but one of the proposed reference sites are outside of and uninfluenced by the Monterey/Modelo formation geology and simply do not adequately represent the unique conditions of the Malibu Creek watershed (see also previous comments discussing the Modelo formation influence). Ultimately, the coastal "reference" streams used by USEPA are only relevant for considering expected nutrient concentrations and BMI scores from Malibu Creek tributaries lacking both urban development and Monterey/Modelo Formation rock, such as upper Cold Creek. Perhaps not surprisingly, SC-IBI scores from Cold Creek are similar to those from the Draft TMDL's coastal "reference" stream sites. However, the sites outside the watershed cannot serve as reference sites for assessing nutrients or BMI scores in areas tributary to Malibu Creek located in urban development built on, or downstream of, the Monterey Formation, as is done in the Draft TMDL, because those sites do not represent water quality impacts solely from urban development, but rather impacts from both urban development and the Monterey/Modelo Formation. The Draft TMDL authors acknowledge that… "*SC-IBI category rankings are not necessarily representative of the unique physical and geological situation of Malibu Creek*" (page 8-11 of the Draft TMDL report). Indeed, USEPA excluded at least two reference sites within the Modelo/ Monterey Formation. USEPA also excludes reference sites within Malibu Creek watershed with sulfate concentrations similar to those in Malibu Creek (median 591 mg/L, but with a maximum of 2,050 mg/L), and excludes reference sites with comparable phosphate concentrations to Malibu Creek's.

USEPA omitted from consideration BMI data that was available for potentially suitable reference sites from several monitoring programs. USEPA ignored three of Heal the Bay's bioassessment reference sites *within* the watershed. These are sites 3 (Upper Cold Creek), 6

[12] [12] Science Advisory Group Meeting. October 17, 2013. Technical Team Causal Assessment Update Presentation.
http://www.waterboards.ca.gov/plans_policies/docs/biological_objective/101712_meeting/three_scoring_tool.pdf

(Cheseboro Creek) and 9 (Las Virgenes Creek). BMI data were excluded from reference Site 16 of the Los Angeles County MS4 tributary monitoring program and from minimally developed Site LV-1 of the MCWMP. According to LVMWD, data for these sites were submitted to the EPA in September 2011 and should have been used to provide an accurate and complete picture of reference conditions in the Malibu Creek watershed.

Finally, on page 8-8 of the Draft TMDL, USEPA acknowledges monitoring they conducted themselves on the main stem at sites selected as potential reference sites. These sites are then explained away as not being appropriate reference sites because of upstream development. However, because the purpose of the monitoring was to look at less impacted sites *on the main stem*, the Draft TMDL should still valuate whether the sites represent natural conditions in the watershed that can naturally lower watershed IBI scores.

Similarly, the SC-O/E targets are also not based on an adequately representative condition. Although the Draft TMDL Appendix D indicates that all the Malibu Creek sites are "within the experience of " the SC-O/E model, the model does not adequately characterize the unique geology and resulting water quality of the Malibu Creek watershed. The predictors used in the California O/E model were mean annual precipitation, watershed percent sedimentary geology, and longitude. These predictors do not represent the elevated concentrations of sulfate, selenium, conductivity, magnesium, chloride, and phosphorus that are characteristic of the Malibu drainage that is influenced by the Modelo formation. The California SC-O/E model used in the Draft TMDL does not consider these factors or a number of other environmental gradients that have been found to be influential on BMI community structure and metrics, including elevation range, stream gradient, temperature, soil permeability, hydraulic conductivity, and watershed area.

4 DISCUSSIONS ON MS4 JURISDICTIONS SHOULD BE CLARIFIED IN DRAFT TMDL

Comment 12-17

The City of Thousand Oaks, Ventura County, and Ventura County Watershed Protection District (VCWPD are all listed in the Draft Benthic TMDL as being located with the Malibu Creek Watershed. The wasteload allocations in the Draft Benthic TMDL are assigned to Ventura County MS4s without identifying specific Ventura County permittees as responsible parties. As there are numerous other municipalities that are covered by the Ventura County MS4 permit, the Draft TMDL should clarify that the Ventura County MS4 allocations only apply to the agencies identified in the Draft TMDL.

This is an important distinction because on page 4-1, the Draft TMDL states that "all areas within the watershed are covered by municipal stormwater permits for LA and Ventura counties." This is an incorrect statement that should be corrected. Municipal Storm Sewer System drainages within the jurisdictions of the City of Thousand Oaks and unincorporated Ventura County are covered by the municipal stormwater permits for Ventura County. However, open space under the jurisdiction of state and federal agencies and portions of the City and County that do not have MS4 systems are not covered by the permit. The language included in the Draft TMDL in essence makes MS4s responsible for all discharges in Ventura County, including agricultural and open space discharges over which they have no authority. As a result, this language should be clarified to reflect the true coverage of the MS4 permit. Examples of the language that should be modified include:

- Page 5-3 includes Table 5-1 that summarizes land use by MS4 jurisdiction. However, this table includes agriculture and undeveloped land. It appears that this table represents all land area in Ventura County, not just the land area under the jurisdiction of the MS4 permittees. This table and associated discussion should be clarified as being the land areas within LA and Ventura Counties and not reference the MS4 permittees. Or, the table should be modified to reflect only the areas within the MS4 jurisdictions.

- On page 5-4 under Non-Point Sources of Pollution, the Draft TMDL states "However, the entire watershed is covered by MS4 permits and flows from properties that drain directly to the creeks without passing through an organized stormwater conveyance represent minimal amounts of impervious area." The majority of the upper watershed is not covered by an MS4 permit and many open space areas drain to the creek without passing through an MS4. As a result, this statement is incorrect and makes MS4s responsible for all drainage in Ventura County. The MS4s do not have authority over or responsibility for these discharges.

The following two figures show the MS4 system for the County of Ventura and City of Thousand Oaks respectively.

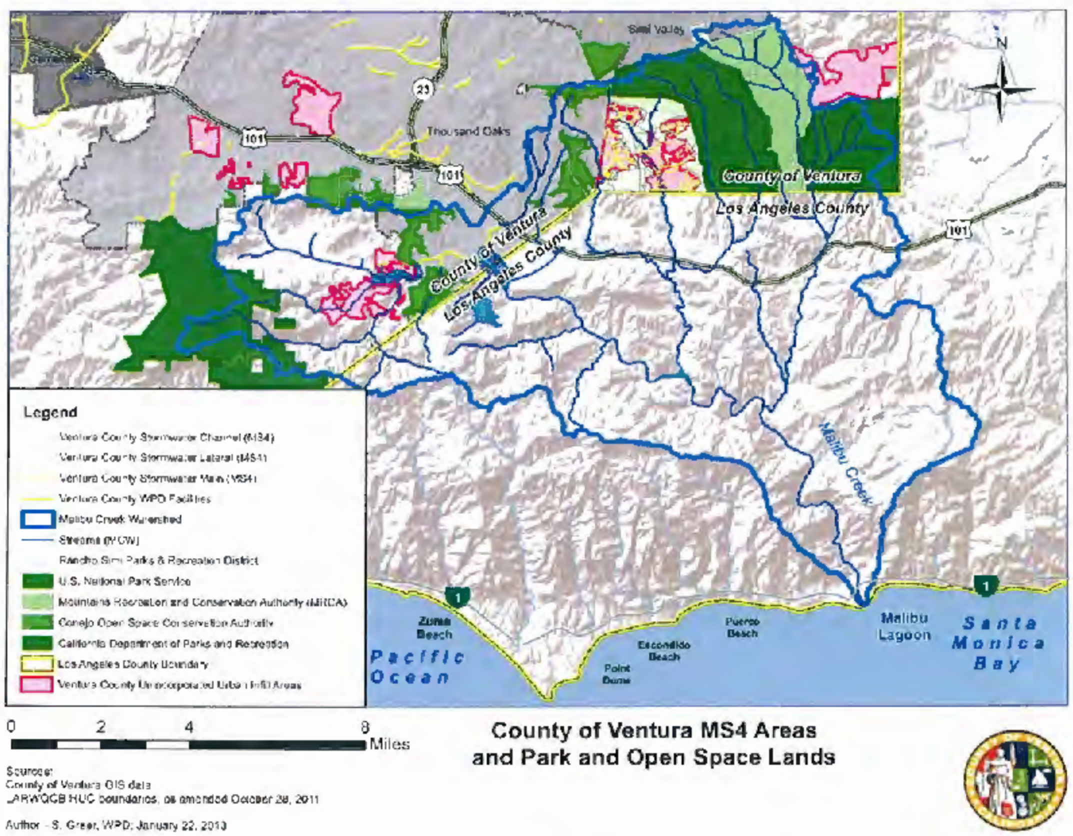


Figure 9. Ventura County Unincorporated Area MS4 and Watershed Protection District Facilities

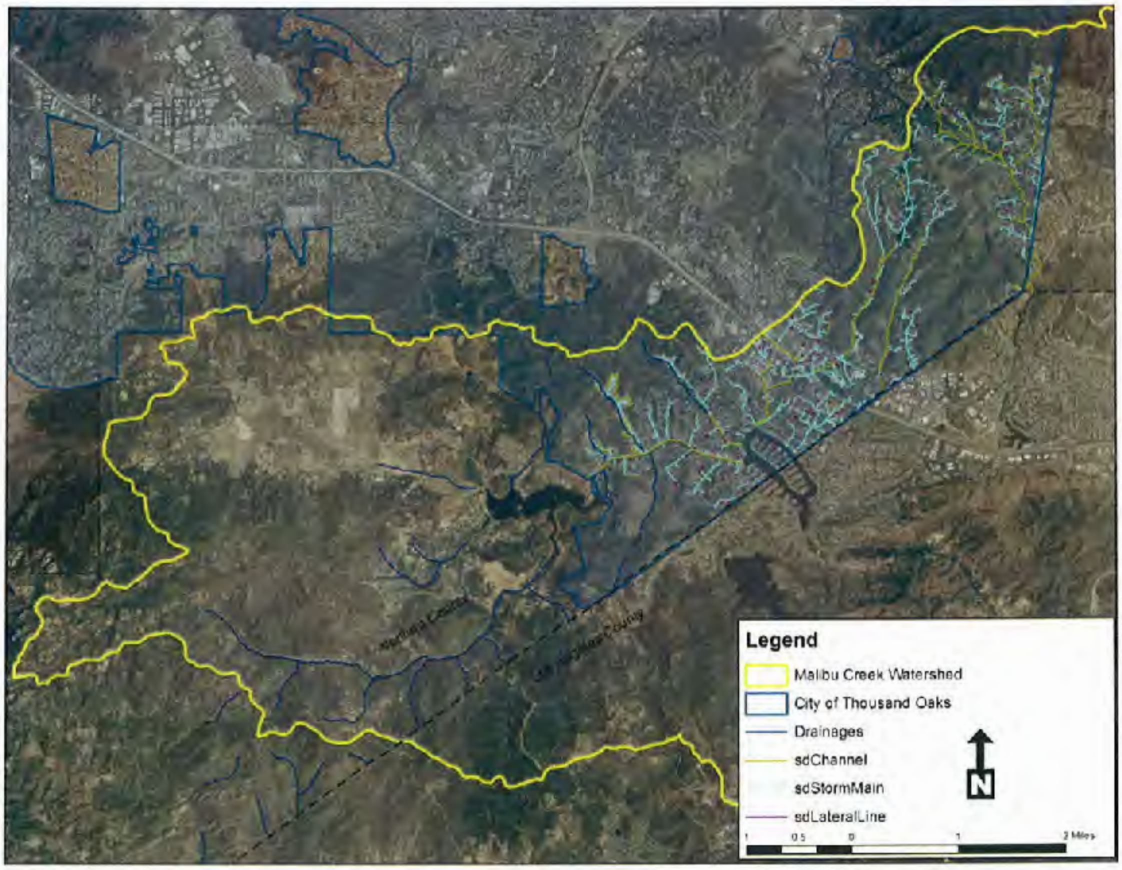


Figure 10. City of Thousand Oaks MS4 System

5 THE DRAFT TMDL TARGETS AND ALLOCATIONS SHOULD ONLY APPLY TO THE MAIN STEM OF MALIBU CREEK

Comment 12-18

As required by the consent decree, the Draft TMDL addresses the impairments for benthic-macroinvertebrate bioassessments in Malibu Creek and benthic community effects in Malibu Lagoon. No other reaches or tributaries in the Malibu Creek watershed are included on the consent decree or specifically identified in the Draft TMDL as being addressed. There is no obligation to include additional tributaries in the Draft TMDL and the Draft TMDL analysis does not sufficiently develop the technical and stressor analysis to justify the application of the proposed targets and allocations to other reaches. Specifically, the modification to the Consent Decree in 2010 that added the Malibu Creek bioassessment community listings also removed the requirement to develop a TMDL for sediment in the tributaries. As discussed in previous comments, there are a number of concerns with the science and technical analysis included in the Draft TMDL and the ability of the current bioassessment information to be used to determine impairments in the Malibu Creek watershed given its unique geologic characteristics. As a result, the Draft TMDL should not address any reaches that were not explicitly required by the Consent Decree.

Additionally, we feel that the technical analysis does not support inclusion of the tributaries at this time. Although data from other reaches are discussed throughout the document, the document does not clearly identify which tributaries are covered by the Draft TMDL and what impairments are being addressed by the Draft TMDL for those reaches. The Draft TMDL in some cases discusses only the main stem, in other cases it refers to main tributaries, and in others refers to tributaries draining to the main stem. As a result it is not possible to determine if the analysis presented applies to the tributaries. For example, the stressor analysis identifies diazinon as a possible cause of toxicity in some tributaries that is not present in the main stem. If a stressor analysis was done for each tributary, it is possible that different stressors would be identified. Additionally, data are not presented in the Draft TMDL that evaluate the current status of mat algae coverage in the tributaries to determine if the information presented in the Draft TMDL applies to the tributaries as well as the main stem.

As discussed in section 1, we were able to review a data file of algal coverage data for the watershed tributaries. Although we have concerns about the use of percent cover data provided as justification for consideration of impairments, these data were considered in the Draft TMDL and are the only available data for analysis. A review of the file confirmed that tributary analyses need to be considered separately from the main stem. Five tributary sites in the provided file have recorded algal percent cover observations since 2006 (though data do not appear to have been collected in 2007 and 2008). Of these five sites, only site LV-5, has consistent observations over the 60% coverage target in the Draft TMDL. A few sites have some observations over 30%, but generally the values fall below the Draft TMDL thresholds. Additionally, the site downstream of LV-5, LV-13 has lower percent cover observations. This review indicates that making a blanket statement that tributaries continue to be impaired for algal coverage is not correct and that algal biomass may not be contributing to any observed benthic impairments in the tributaries.

Based on this analysis, we request that the Draft TMDL clarify that the proposed targets and allocations apply solely to the main stem of Malibu Creek and Malibu Lagoon. In particular, Section 10 should be modified throughout to remove references to the tributaries. Additionally, Table 10-5 should only include responsible parties that discharge directly to the main stem or lagoon.

6 THE DRAFT TMDL ALLOCATION DISCUSSION SHOULD REMOVE REQUIREMENTS TO INCLUDE BIOLOGICAL AND ALGAL RESPONSE TARGETS IN NPDES PERMITS

Comment 12-19

On page 10-11, the Draft TMDL includes allocations that state "both the nutrient allocations and the algal coverage target must be met." Allocations cannot regulate non-pollutants, nor do the dischargers have any control over the biological response of the waterbody to nutrient discharges. As a result, it is not appropriate to assign allocations that include the algal coverage target to the MS4s.

In addition, please remove the following statement on page 10-13:

> "The biological response numeric targets for Malibu Creek and Lagoon are directly linked to the allocations and should be placed into the applicable regulatory mechanism (i.e., NPDES permit) in order to ensure that the benthic community condition achieves the water quality objectives."

As discussed for the algal targets and in the main body of the comment letter. We do not believe that EPA has the authority to regulate benthic macroinvertebrates in a Draft TMDL and cannot assign them as allocations. MS4 dischargers do not have the ability to control benthic macroinvertebrates, just the pollutants that may impact them. As a result, it is inappropriate to include the statement above in the Draft TMDL.

Finally, it is not appropriate to hold individual NPDES permit holders responsible in their NPDES permits for attainment of algal coverage and biological response numeric targets. Insufficient evidence has been provided in the Draft TMDL to indicate that any individual NPDES permit holder is causing or contributing to any biological condition impairment. Individual NPDES permit holders should not be held responsible for attaining targets that may not be related to their discharges, and that may require actions beyond the NPDES permit holder's control to resolve.

7 THE DRAFT TMDL ALLOCATION DISCUSSION SHOULD CLARIFY THE MEANING OF INSTREAM ALLOCATIONS Comment 12-20

Section 10.3.3 needs to be revised for clarity. The section includes both instream allocations and Table 10-5 that lists the responsible parties as having instream allocations. However, the Draft TMDL is not clear on where the instream allocations apply and how instream allocations will be included in NPDES permits. Are the allocations to be applied as receiving water limitations? If so, the Draft TMDL should be clear that these are receiving water limitations and that any end-of-pipe allocations that are determined for individual dischargers should be developed using a technical analysis (i.e. model) that provides a linkage between the discharges and the instream allocation. Responsible parties that do not directly discharge to the reaches for which the instream allocations apply should not be included Table 10-5.

8 ADDITIONAL CLARIFICATION REQUESTS

This section of the technical comments provides additional requests for clarification in the Draft TMDL in addition to the main comments outlined above. This portion of the comments has been organized by section of the Draft TMDL.

8.1 Section 1 Specific Comments Comment 12-21

On page 1-4, the Draft TMDL states for Malibu Lagoon "The impact from the previous construction activities led to loss of native species, increasing urban runoff, and excessive nutrient inputs." No justification is provided for this statement other than development occurred. Although these impacts may have occurred, without data to support this statement, it should be removed.

8.2 Section 2 Specific Comments

In section 2.1.3, the Draft TMDL incorrectly identifies that "Any actions that can adversely affect water quality in all surface and ground waters must be consistent with the maximum benefit to the people of the state, must not unreasonably affect present and anticipated beneficial use of such water, and must not result in water quality les than that prescribed in water quality plans and policies." The Antidegradation Policy does not require all actions to be consistent with the maximum benefit to the people of the state. Only actions that will degrade high quality waters require consideration of the maximum benefit to the people of the state. Comment 12-22

On page 2-6, the Draft TMDL refers to a 2008 303(d) list. Although the Los Angeles Regional Water Quality Control Board developed a staff report and recommendations in 2008, there was no 303(d) list approved in 2008 by the SWRCB or USEPA. The section should clarify the references in this section and where appropriate refer to the 2010 list. Comment 12-23

Page 2-9. There is no basis for the citation that 40 taxa is a threshold for a healthy community of benthic macroinvertebrates in Malibu Lagoon. This threshold should be removed. Additionally, it conflicts with the statements in Section 10 that say 35 is the appropriate target. Comment 12-24

8.3 Section 3 Specific Comments

Page 3-2. The target for Benthic Community Diversity should be removed. There is no basis for this target or any way for it to be measured. It is not numeric and is duplicative of the IBI and O/E targets which are already duplicative of each other. Additionally, it is inconsistent with Section 10 where no target is included for the creek. Therefore, it should be removed from Section 3. Comment 12-25

Page 3-2. The last portion of the last sentence in the Benthic Algal Coverage target should be removed as follows "and ideally less than 100 mg/m^2 (referred to as the BURC II/III and BURC I/II boundaries." As is discussed later in the Draft TMDL, there are questions about the ability of the watershed to achieve 150 mg/m^2 due to natural conditions and there has been no technical data presented anywhere in the document that justifies consideration of 100 mg/m^2 as a target. The NNE Policy has not yet been promulgated and it is premature to include a lower algal biomass target without technical justification in the report. In fact, the Draft TMDL states on page 10-9 that "nutrient levels are naturally elevated to some extent due to the presence of marine sedimentary rocks, further suggesting use of the BURC II/II threshold as a target." The inclusion of the BURC I/II threshold of 100 mg/m^2 in the target discussion creates confusion about the targets in the Draft TMDL and it should be removed. The same statement should also be removed from page 10-2. Comment 12-26

Page 3-3. How do reference conditions based on data in the upper reaches reflect the concentration needed to protect the Lagoon? What analysis was provided in the Draft TMDL that nutrient concentrations in the Lagoon need to be lower? Comment 12-27

Page 3-3. There is no basis for the determination that less than 20 taxa is an impaired system. As stated on page 3-3, there where no reference site data available for the Lagoon to determine whether or not it is impaired and what the appropriate number of taxa should be in an unimpaired lagoon. Also, on page 3-4, the target goal is set at 35 and in Section 2, a number below 40 is considered impaired. This shows there is no consistent basis for the target and that it should be removed. Comment 12-28

8.4 Section 4 Specific Comments

On Page 4-12, the Draft TMDL states that no GIS coverages were available for Thousand Oaks and Ventura County stormwater systems. GIS coverages for both these areas are available and can be provided to USEPA, if needed. **Comment 12-29**

8.5 Section 6 Specific Comments

On page 6-8, Table 6-4 summarizes the Draft TMDL model analysis that was done to predict pre and post impacts of development. The text below the table states *"There is a dramatic change in extreme low flow frequency: In the pre-impact period the median number of days with zero flow was four per year, whereas none occur in the post-impact period."* However, Table 6-2 shows the average flow for many months in 2007-2010 as being zero. This appears to indicate that the analysis shown in Table 6-4 is not accurately reflecting the actual conditions in the watershed. **Comment 12-30**

8.6 Section 7 Specific Comments

On page 7-7, Table 7-3 lists a criteria value for conductivity that is an extrapolation of a TDS water quality objective. It is inappropriate to call this a criterion in the table as no water quality criterion for conductivity applies in the watershed. The header in the table should be changed. **Comment 12-31**

On page 7-9, Table 7-4 discusses the results of the turbidity analysis for Malibu Creek. The average turbidity for the main stem sites ranges from 1.31 to 2.62 NTU. This is compared to reference reaches that are located outside the watershed with no analysis or comparison as to the soil conditions. As discussed earlier in the Draft TMDL, the Malibu Creek watershed has highly erodible soils and it is inappropriate to determine the watershed is exceeding turbidity standards when compared to reference conditions that are not within the watershed. Additionally, determination of turbidities in the 1 to 2 range as being impaired does not seem accurate. Tertiary treated wastewater has turbidity in that range and is considered high quality recycled water. **Comment 12-32**

On page 7-16, LVMWD data is not summarized because it does not include Total N or Total P data. However, all of the Heal the Bay data is summarized and used as the basis for multiple analyses and it does not include Total N or Total P data either. Why was this data not included in the analysis when the Heal the Bay data was included? **Comment 12-33**

Section 7.5 is very confusing and does not provide a clear understanding of reference conditions or data analysis. The section mixes discussion of inorganic and total forms of nitrogen and phosphorus. The discussion and information shown in Figure 7-11 demonstrates the importance of only discussing total nitrogen and the significant impacts of other forms of nitrogen on the analysis. This section should be clarified and only discuss total forms of the constituents. **Comment 12-34**

8.7 Section 10 Specific Comments

On page 10-8, the Draft TMDL states "TMDL nitrate targets have generally been met in the Malibu creek main stem". However, the 2003 TMDL summer target was for total nitrogen, not nitrate. The Draft TMDL should be revised here and throughout the document to reflect the total nitrogen target for summer time, and all references to comparisons to nitrate concentrations should be removed or revised. **Comment 12-35**

The statement on page 10-10 that "Strong evidence indicates that the nutrient targets established in the 2003 TMDL have been mostly met" is in contradiction with other statements throughout the Draft TMDL and the data analysis presented in previous sections and should be removed. **Comment 12-36**

8.8 Section 11 Specific Comments

In Section 11, the Draft TMDL should include a recommendation to revisit the Draft TMDL once the State's bioobjectives are developed. The Draft TMDL should be clear that the implementation schedule for any required actions should reflect the schedule for the biological objective development to ensure that significant costs are not incurred before an appropriate analysis of the biological condition of the Malibu Creek watershed can be developed in accordance with the State's Policy. **Comment 12-37**

Comment 12-38

ATTACHMENT C.

Geosyntec consultants

Technical Achievability Assessment of the Malibu Creek and Ventura River Nutrient TMDLs

Ventura County
January 2013

Executive Summary

The Draft Malibu Creek & Lagoon Total Maximum Daily Load (TMDL) for Sedimentation and Nutrients to address Benthic Community Impairments (Malibu Creek Benthic TMDL) (U.S. Environmental Protection Agency [USEPA] Region 9, 2012) and the Draft Ventura River Reaches 3 and 4 TMDL for Pumping & Water Diversion-Related Water Quality Impairments (Ventura River Pumping TMDL) (USEPA Region 9, 2012) have both established numeric targets for nutrient reduction that, based on available solutions, are infeasible to consistently meet. Although non-structural and structural Best Management Practices (BMPs) are capable of reducing total nitrogen (TN) and total phosphorous (TP), this analysis finds no solution capable of meeting the proposed numeric targets with the consistency that is required. The TMDL-established numeric targets do not allow for any exceedances within each specific water body, which, due to the variable nature of influent quality and BMP performance, makes meeting these targets infeasible.

The Malibu Creek Benthic TMDL establishes summer and winter TN numeric targets of 0.6 mg/L and 1.0 mg/L, respectively, and a year-round TP numeric target of 0.1 mg/L. The International BMP Database shows that no traditional structural treatment BMP is capable of producing a median (i.e., 50% of samples exceed this) TN effluent concentration of 0.6 mg/L, a 75th percentile (i.e., 25% of samples exceed this) TN effluent concentration of 1.0 mg/L, or a 75th percentile TP effluent concentration of 0.1 mg/L (shown in Figures 1 and 2) (Geosyntec Consultants, *et al*, 2012). Therefore, no traditional structural treatment BMP types are available to consistently meet these low TMDL numeric targets.

The Ventura River Pumping TMDL establishes a dry weather TN numeric target of 1.15 mg/L and a dry weather TP numeric target of 0.028 mg/L. The International BMP Database shows that no traditional structural BMP is capable of producing a 75th percentile (i.e., 25% of samples exceed this) TN effluent concentration of 1.15 mg/L or a 25th percentile (i.e., 75% of samples exceed this) TP effluent concentration of 0.028 mg/L (shown in Figures 1 and 2) (Geosyntec Consultants, *et al*, 2012). Therefore, no traditional structural treatment BMP types are available to consistently meet these low TMDL numeric targets.

Additionally, the inability to achieve 100 percent coverage of non-structural BMPs, combined with the economic and siting constraints associated with structural BMPs, add further compliance feasibility complications. The conflicting treatment conditions required for TN and TP removal (i.e., denitrification of nitrate requires anaerobic conditions, however this typically results in the export of previously-bound phosphorus from soil or filter media) also make developing a single cost-effective solution technically infeasible. Due to these various constraints, achieving the proposed numeric targets will require costly chemical/mechanical systems (which are typically impractical for treating wet weather flows) or an impractical suite of advanced natural treatment systems.

Introduction

The purpose of this memorandum is to evaluate the feasibility of attaining the nutrient numeric targets outlined in the Draft Malibu Creek Benthic TMDL and the Draft Ventura River Pumping TMDL. While a variety of nutrient numeric targets exist, total nitrogen (TN) and total phosphorous (TP) were selected for this analysis based on their data availability and consistency between TMDLs.

The following sections outline the existing numeric targets for each of the TMDLs, the available solutions for meeting these targets, and a discussion of the feasibility of applying such solutions.

TMDL Numeric Targets

TMDL numeric targets are established to measure attainment of the water quality standards for the most significant pollutants within each specific TMDL. These targets were set based on reference stream data, with the goal of matching reference stream conditions for control of algal stimulation and eutrophication, and ultimately biota protection. Table 1 displays the range of TN and TP numeric targets defined for MS4s in the Draft TMDLs.

Table 1: TMDL Numeric Targets Summary

Constituent	Draft Malibu Creek Benthic TMDL		Draft Ventura River Pumping TMDL	
	Summer	*Winter*	*Dry*	*Wet*
TN (mg/L)	0.6	1.0	1.15	5* -7.4
TP (mg/L)	0.1	0.1	0.028	-

*NO3-N – NO2-N only

Non-Structural Source Controls

Due to their low cost relative to structural treatment controls, the first emphasis of most nutrient TMDL implementation strategies is to exhaustively explore and implement non-structural BMPs to control nutrients at their source. Non-structural BMPs include outreach, inspection, and enforcement-based programs, such as those targeting homeowners to address over-irrigation and car-washing as sources of nutrient rich dry weather runoff, pet owners to address pet waste, homeowners and landscapers on proper fertilizer application, and food outlets to address sidewalk hose-down and proper trash and grease trap management. Non-structural BMPs also include illicit discharge detection and elimination (IDDE) programs, including efforts to identify chronic sources of nutrients into the MS4. Street sweeping and catch basin cleaning are also emphasized and intended to remove sources of sediment, trash and organic litter, all of which may contribute nutrients to the MS4.

The City of Tulsa, Oklahoma (City) carried out a multi-dimensional stormwater quality management program in the 1990s that used non-structural BMPs including an IDDE program, litter collection campaigns, illegal dumping minimization programs, hazardous waste collection programs, advertising campaigns, and a stormwater drain stenciling program. The City conducted wet weather sampling before and after program implementation to determine four year event mean concentrations (EMC) used to quantify the program's success. The pre-program TP EMC was 0.33 mg/L, which was reduced to 0.27 mg/L as a result of the program. The pre-program Total Kjeldahl Nitrogen (TKN)[1] EMC was 1.66 mg/L, which was reduced to 1.35 mg/L as a result of the program (Lehner, *et al*, 1999). Although the success of non-structural BMPs is difficult to quantify, and this case study represents a relatively successful program, the efforts exerted still resulted in post-program average EMCs that are significantly higher than the do-not-exceed TMDL numeric targets cited above.

Even with the most optimistic assumptions, a thoroughly exhaustive and comprehensive implementation of non-structural BMPs can simply not achieve compliance with any of the TMDL numeric targets unless discharges are completely eliminated, which is not an option during wet weather and may not be feasible during dry weather given the existence of permitted flows (e.g., fire hydrant testing, groundwater inflow, etc.). This is partly because outreach, inspection, and enforcement can never achieve perfect control outcomes (i.e., some target groups will miss outreach, some behaviors won't change, and some waste generation activities will miss inspection). This is also partly because some urban nutrient loads are unable to be addressed by such programs (e.g., nutrients in stormdrain sediments consistently mobilize whenever flows are present, such as during one of the many allowed dry weather flow sources) and because there are also natural sources of nutrients (e.g., plant debris). Additionally, many street sweeping programs fail to remove fine particles, which often contain the highest concentrations of pollutants, and overall one study found that street sweepers were only capable, on average, of removing 50% of the debris on the street (Taylor, *et al*, 2002). Evaluations of the effectiveness of sweeping and cleaning programs have consistently indicated that they are not able to capture 100% of sediments and organic debris.

[1] TN will be higher than TKN (ammonia plus organic nitrogen) since TN also includes NO3-N and NO2-N.

Structural BMPs

Due to limitations in the effectiveness and consistent performance of non-structural BMPs, more costly and time-intensive (i.e., more advance planning time is required) structural BMPs may be employed due to their more reliable, effective, and controllable nutrient reduction capabilities. In general, more natural, passive, sustainable, and multi-benefit structural BMPs are preferred and recommended (as opposed to energy-intensive, mechanical systems). Dry weather structural BMPs may potentially include localized infiltration and diversions to the sewer system. During wet weather, however, many structural BMPs are often not capable of achieving compliance due to substantially greater and more variable inflow rates. Treating wet weather flows would require considerable transient storage, more than is often feasible based on site constraints.

Geosyntec is co-principal investigator on the EPA/ASCE International Stormwater BMP Database, which is used to help evaluate and predict performance of traditional structural treatment BMPs in removing constituents. When comparing nutrient removal statistics, the database includes wet weather structural BMPs such as grass strips, bioretention, bioswales, composite/treatment trains, detention basins (surface/grass-lined), green roofs, manufactured devices, media filters, porous pavement, retention ponds (surface pond with a permanent pool), wetland basins[2], and wetland channels (swales and channels with wetland vegetation) (Geosyntec Consultants, *et al*, 2012). Figures 1 and 2 display statistically evaluated monitoring data from the database describing structural BMP performance by comparing influent and effluent TP and TN concentrations. The range of TMDL numeric targets has been identified on Figures 1 and 2 for reference, with the TP targets ranging from 0.028 to 0.115 mg/L (varies based on specific TMDL), and the TN targets ranging from 0.6 to 7.4 mg/L (varies based on specific TMDL). Effluent concentrations have been shown to be a more robust predictor of BMP performance than percent concentration reduction, therefore they are used here for comparison with TMDL numeric targets.

---

[2] The wetland basins compared in this analysis are free surface wetlands.

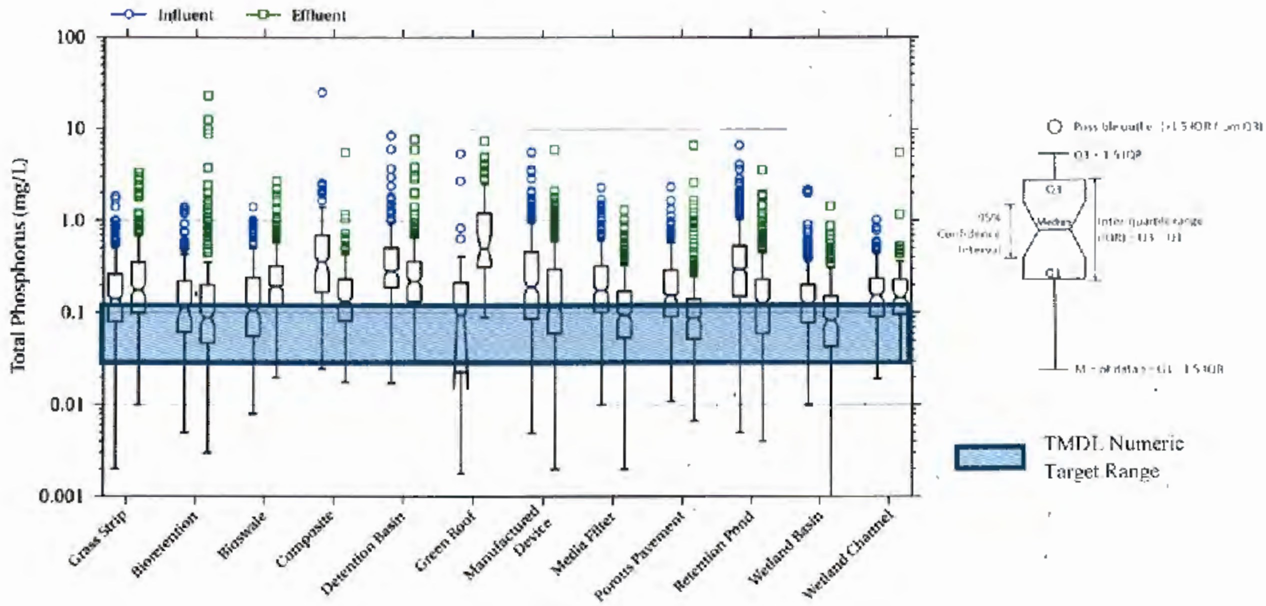


Figure 1. Structural BMP performance (TP)

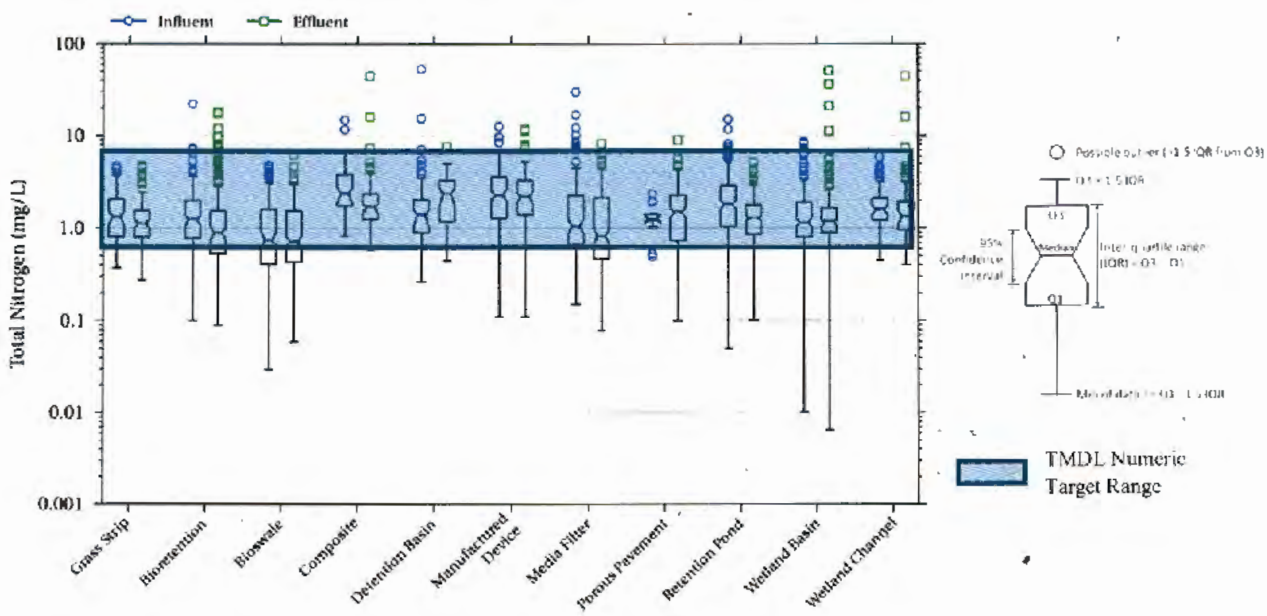


Figure 2. Structural BMP performance (TN)

Overall, the most effective BMP types for TP (i.e., those with the lowest effluent concentrations and with non-overlapping influent-effluent confidence intervals), which all have a median effluent concentration less than 0.1 mg/L TP, are bioretention, media filters, porous pavement, and wetland basins. The most effective BMP types for TN, which all have a median effluent concentration less than 1 mg/L, are bioretention and media filters[3]. **Therefore, based on a comparison of reported BMP effluent concentrations and the TMDL numeric target ranges, even these best performing structural BMPs are not capable of consistently (i.e., meeting ≥75% of the time) achieving any of these TMDL numeric targets except where TN is around 2 mg/L or greater.**

Beyond those BMPs studied in the database, additional structural BMPs appropriate for nutrient reduction exist such as subsurface flow wetlands (which have less performance data available but initial datasets suggest a relatively high level of effectiveness) and "zero discharge" types that rely on infiltration (e.g., infiltration trenches and basins) or capture and use (e.g., rainwater harvesting cisterns). While data for subsurface wetland pollutant removal vary widely, one study conducted by the University of New Hampshire from 2004 through 2010, reports an expected average subsurface wetland effluent TP concentration of 0.02 mg/L (UNHSC, 2012) and a separate study reports an expected average subsurface wetland effluent TN concentration of 0.47 mg/L (Lyon, 2006). However, these are average effluent concentrations and therefore results above the 0.6 mg/L TN and 0.028 mg/L TP targets would be very likely. Infiltration basins and capture and use systems will result in 100% removal of pollutants captured, however the quantity captured is dependent on the storage available. Most importantly though, it is not feasible to completely retain or capture/use all wet weather MS4 discharges, and so some treatment and discharge would be necessary. Additionally, the Environmental Protection Agency (EPA) reports that infiltration basins are only capable of removing 55-60% of TN and 60-70% of TP (EPA, 2012). Therefore, even if the nutrient load is removed from the discharge, a percentage will infiltrate into the groundwater and ultimately influence nearby surface water.

These "additional" structural BMPs are effective for nutrient removal but are subject to local and site-specific constraints, which must be evaluated before implementation. For instance, infiltration BMPs are not appropriate for areas with relatively impervious soils, shallow groundwater, steep hillsides, landslide or liquefaction risk zones, subsurface contamination, or close proximity to certain structures. Similarly, capture and use BMPs are not cost effective for areas with little available water demand (such as minimal landscaping irrigation needs) or where water demand is temporally inconsistent with available supply (frequently the case in the arid southwest where rainfall occurs during one season while peak irrigation demands occur during a different period). Finally, "zero discharge" type BMPs are not appropriate if the

[3] Bioswales also have a low effluent concentration however they are not further considered here because their influent and effluent concentrations are not statistically different and therefore this BMP type is likely not effective for TN removal.

discharge area warrants a footprint area that is not available at the site. Therefore, these low numeric nutrient targets leave many urban areas without feasible or cost-effective wet weather structural BMP options available for TMDL compliance.

Basin-Wide Implementation

Even combining non-structural and structural BMPs, the ability to develop a basin-wide implementation plan and meet specific numeric targets is difficult. Such plans often require high investments and may result in minimal benefit. For instance, the Chesapeake Bay nutrient management strategy has been an extremely challenging task that has resulted in very high expenditures with mediocre results. Out of concern for the nutrient enriched Chesapeake Bay, the EPA along with local states agreed to implement a basin-wide nutrient reduction strategy in 1987. With the ultimate goal of improving dissolved oxygen (DO) conditions within the bottom waters of the bay, a 40% nitrogen and phosphorous load reduction goal was set for achievement by 2000. Between 1985 and 1996 an estimated \$3.5 billion were spend toward nutrient controls; 20% of these funds allocated to point source nutrient reductions. As of 1996, nitrogen had been reduced by 16% and phosphorous by 53%, however there was no observable benefits to the DO conditions (Butt, *et al*, 2000). Furthermore, a more recent study suggests that nitrogen loads from urban/suburban sectors have actually increased in the Chesapeake Bay by 3%, and phosphorous by 7% between 1985 and 2009 (Committee on the Evaluation of Chesapeake Bay Program Implementation for Nutrient Reduction to Improve Water Quality, 2011). In 2010, the EPA established the Chesapeake Bay TMDL to restore the Bay by 2025, with an interim goal of 60% restoration by 2017 (EPA, 2010). To accelerate progress, a two-year milestone strategy was developed that included the application of land-based BMPs to ensure each jurisdiction was on track for reaching the TMDL goal in 2025. A review of the 2-year milestone status found the costs of urban stormwater BMPs to be between a few thousand dollars per impervious acre up to \$200,000 per impervious acre. The high expenditures were attributed to space constraints and prohibitive costs of purchasing land (CECBP, 2011).

The Chesapeake Bay case study is an example of a costly stormwater nutrient management program that used available non-structural and structural BMPs and ultimately failed to achieve the established program goals. As targets were continually not met, the funds continued to grow, which is a potential result if the available solutions and technology are incapable of achieving the established numeric targets.

Discussion

Although some BMPs have been shown to meet the TMDL targets, even if 100% of the stormwater volume was treated and the BMPs were capable of achieving the TMDL numeric targets, they would likely not meet them on a consistent basis due to the variability in runoff volume and performance of BMPs. Furthermore, site constraints will limit the quantity of treatable volume and reduce the overall runoff capture percentage.

For dry weather compliance; solutions such as public outreach and education, IDDE, and localized infiltration or diversion to the sewer can potentially be effective but are largely limited by implementation coverage. Non-structural BMPs are less expensive but due to uncontrollable behavior, are incapable of locating and reducing/eliminating 100% of all dry-weather sources within the watershed. Therefore, dry-weather BMPs are expected to reduce TN and TP loading to some degree as demonstrated in Tulsa, Oklahoma, but are most likely not capable of consistently meeting the numeric targets outlined in the TMDLs unless 100% of MS4 discharges can be prevented or captured.

Based on the available wet weather technologies presented in the previous section and in Figures 1 and 2, the best performing structural BMPs for treating both TN and TP are bioretention, media filters, and subsurface flow wetlands. However, as previously discussed, site constraints regarding soil suitability may limit the application of bioretention systems and media filters. Additionally, the large quantity and variability in runoff volume is generally not suitable for subsurface wetlands unless a sufficient footprint is available to allow adequate pretreatment, flow equalization, and residence time in the wetland system. Finally, even if construction is feasible, the median effluent concentrations for TN and TP were determined based on a range of data that includes much higher concentrations that would have exceeded the TMDL numeric targets. As a result, 100 percent achievement of the numeric targets is not feasible. **Due to these limitations, there is no apparent single solution available to consistently meet the numeric targets established within each TMDL for both TP and TN. The alternative solution will instead likely necessitate a costly and impractical suite of advanced natural systems or mechanical treatment systems.**

Furthermore, achieving nutrients numeric targets through treatment using traditional BMPs is made more difficult by the fact that different reduction-oxidation conditions are required to treat stormwater for the predominant forms of TN and TP in stormwater. A 2010 evaluation of advanced biofiltration media composition showed an increase in nitrate removal with media containing increasing percentages of granular activated carbon (GAC); however, this same increase in GAC resulted in a higher export of phosphate. Conversely, the addition of peat moss in the mixture resulted in no substantial nitrate removal, but resulted in less phosphate exported. The results of this study suggest that there are tradeoffs that the designer must consider when treating both nitrate and phosphate, which will ultimately decrease the overall efficiency of the design (Pitt, *et al,* 2010). In addition, the removal of nitrates within a bioretention system requires denitrification under anaerobic conditions. However, such anaerobic conditions can potentially export phosphate from the system, thus increasing TP in the effluent (Pitt, *et al,* 2010). One study that analyzed the capabilities of an optimized bioretention soil mixture found similarly that a saturation zone (anaerobic condition) would increase nitrate removal and decrease ortho-phosphate removal (Palmer, 2012). However, a separate study of laboratory and field data for various bioretention designs found that the inclusion of an anaerobic zone had a limited impact on the system and actually showed an increase in TP reduction when analyzing a system with an anaerobic zone (Hunt, 2003). These academic studies evaluated optimized designs under controlled conditions, and do not represent BMP implementation on a basin-wide scale. However, even such controlled conditions provide varying results, which further complicates the design for TN and TP removal. Based on a review of available data and literature, no suitable treatment BMP was discovered that can efficiently treat both TP and TN to very low levels concurrently. Therefore, multiple structural controls (such as aerobic and anaerobic units in series) will be necessary within a treatment train to treat for TN and TP sequentially.

The difficulty in achieving high coverage with non-structural BMPs (i.e., for source control and dry weather MS4 discharge prevention), the site constraints associated with structural BMPs, and the very limited set of structural BMPs capable of consistently meeting the very low TN and TP numeric targets, make developing a basin-wide nutrient reduction strategy very difficult. As shown in the Chesapeake Bay case study, high investments will be required without the promise of beneficial results. As a result, consistent MS4 compliance with the low TMDL numeric targets at all outfalls during both dry and wet weather is considered technically infeasible.

References

Butt, Arthur J, and Bonnie L. Brown. 2000. *The Cost of Nutrient Reduction: A Case Study of Chesapeake Bay.* Coastal Management 28:2,175-185.

Committee on the Evaluation of Chesapeake Bay Program Implementation for Nutrient Reduction to Improve Water Quality. 2011. *Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation.* The National Academies Press. Washington, D.C.. Available at http://www.mawaterquality.org/capacity_building/documents/NASReport.pdf.

Environmental Protection Agency (EPA). "National Menu of Stormwater Best Management Practices." *National Pollutant Discharge Elimination System (NPDES).*Web. 16 Jan. 2013. Available at http://cfpub.epa.gov/npdes/stormwater/menuofbmps/.

EPA. 2010. Final Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment. Available at http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html.

Geosyntec Consultants, and Wright Water Engineers.2012. *International Stormwater Best Management Practices (BMP) Database Pollutant Category Summary Statistical Addendum: TSS, Bacteria, Nutrients, and Metals.*International Stormwater BMP Database.

Hunt, William F., III. 2003. *Pollutant Removal Evaluation and Hydraulic Characterization for Bioretention Stormwater Treatment Devices.* Thesis. The Pennsylvania State University.

Lehner, P.H., Aponte Clarke, G.P., Cameron, D. M., and Frank, A. G. 1999, *Stormwater Strategies: CommunityResponses to Runoff Pollution,* Natural Resources Defence Council, New York, New York. Available at www.nrdc.org/water/pollution/storm/stoinx.asp.

Lyon, S., 2006. *Subsurface-Flow Constructed Wetlands for Water Treatment.* Southwest Hydrology, January/February 2006.

Palmer, Eric Tyler. 2012. *Nitrate and Phosphate Removal through an Optimized Bioretention System.* Thesis. Washington State University, 2012.

Pitt, Robert, Ph.D., P.E., BCEE, D.WRE, and Shirley E. Clark, Ph.D., P.E., D.WRE. 2010. *Evaluation of Biofiltration Media for Engineered Natural Treatment Systems.*

Taylor, Andre, and Tony Wong. 2002. *Non-Structural Stormwater Quality Best Management Practices – A Literature Review of their Value and Life-Cycle Costs. Cooperation Research Centre for Catchment Hydrology.* Technical Report 02/13.

United States Environmental Protection Agency (USEPA) Region 9. 2012. DRAFT: Malibu Creek & Lagoon TMDL for Sedimentation and Nutrients to Address Benthic Community Impairments. Available at http://www.epa.gov/region9/water/tmdl/pdf/EpaMalibuCrkLagoonTMDL2012-12-12MainReport.pdf.

United States Environmental Protection Agency (USEPA) Region 9. 2012. DRAFT: Ventura River Reaches 3 and 4 Total Maximum Daily Loads for Pumping & Water Diversion-Related Water Quality Impairments. Available at http://www.epa.gov/region9/water/tmdl/pdf/ventura-river-reaches3-4_tmdl.pdf.

University of New Hampshire Stormwater Center (UNHSC). 2012. *Biennial Report.* University of New Hampshire.

PHILIPPA KLESSIG
Mayor

ROBERT SLAVIN
Mayor Pro Tem

MARK RUTHERFORD
Councilmember

NED E DAVIS
Councilmember

SUSAN McSWEENEY
Councilmember

Recd 1/25/13
CLN/Lamie D

January 24, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Subject: Malibu Creek and Lagoon TMDL's for Sedimentation and Nutrients

Dear Ms. Lin:

The City of Westlake Village wishes to express its opposition to the proposed revision of Total Maximum Daily Loads (TMDLs) in the Malibu Creek Watershed for sediments and nutrients. Cities, homeowners and businesses in the region stand to be adversely affected if the proposed new standards are rushed into place without a proper scientific vetting.

As a community and watershed, we have made extensive investments in improving conditions in Malibu Creek and its tributaries. Through changes in building codes to control runoff, trash filtering and oil capture up through more weekly street sweeping, we continue to fulfill the mission of a community engaged in the stewardship of the watershed. Many of these activities are being done as a result of the 2003 Malibu Creek Nutrient TMDL and actions of the Los Angeles Regional Water Quality Control Board.

Given the significant investments in these measures, along with others such as the recently adopted Los Angeles County MS4 permit, we request that the EPA take a more deliberate approach to the placement of any more stringent standards for the creek.

If adopted as proposed, the TMDLs may result in additional financial and administrative burdens to this City and to the constituents we mutually serve, with no assurances that these measures will be effective. At a time when the economy challenges each governmental entity to be prudent users of public funds, we believe this proposal carries great risk with no guarantee of a tangible public benefit. **Comment 13-1**

For these reasons and others, we respectfully request that EPA forego the placement of the proposed TMDLs, allow the 2003 standard to demonstrate its effects, and that fully vetted scientific standards be applied to the unique traits of Malibu Creek before any additional corrective measures are adopted.

Sincerely,

Philippa Klessig
Mayor

31200 OAK CREST DRIVE • WESTLAKE VILLAGE • CA • 91361 • (818) 706-1613 • FAX (818) 706-1391 • www.wlv.org

CITY OF WESTLAKE VILLAGE
1981

PHILIPPA KLESSIG, Mayor
ROBERT SLAVIN, Mayor Pro Tem
MARK RUTHERFORD, Councilmember
NED E DAVIS, Councilmember
SUSAN McSWEENEY, Councilmember

January 18, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Subject: **Malibu Creek and Lagoon TMDL's for Sedimentation and Nutrients**

Dear Ms. Lin:

The City of Westlake Village wishes to express its concern for the proposed revision of Total Maximum Daily Loads (TMDLs) in the Malibu Creek Watershed for sediments and nutrients. Cities, homeowners and businesses in the region stand to be adversely affected if the proposed new standards are rushed into place without a proper scientific vetting.

As a community and watershed, we have collectively made significant investments into improving conditions in Malibu Creek and its tributaries. Through changes in building codes to control runoff, trash filtering and oil capture to including weekly street sweeping, every community in this watershed continues to be engaged in the stewardship and well being of the Malibu Creek watershed. Many of these activities are being done as a result of the 2003 Malibu Creek Nutrient TMDL as well as past and current Los Angeles County MS4 permits.

Given the significant investments to date that have been made and will continue to be made under the recently adopted Los Angeles County MS4 permit, we request that the EPA take a more deliberate approach to the placement of any more stringent standards on the creek. The reasons are many, among them are:

- No assurances that tighter standards will produce the desired effect, specifically the elimination of algae in Malibu Creek; **Comment 14-1**

31200 OAK CREST DRIVE • WESTLAKE VILLAGE • CA • 91361 • (818) 706-1613 • FAX (818) 706-1391 • www.wlv.org

- Malibu Creek has unusual background chemical characteristics that do not integrate well with a "one size fits all" approach to stream regulation. Its background salinity and native nutrient levels require a specific and scientific approach to any standards that are proposed to be used here; and Comment 14-2
- The proposed TMDL has not been given an appropriate amount of time fc. evaluation. It was released for public review on December 12th and the comment deadline is January 23, 2013. Under normal circumstances, that is a short time frame for in-depth analysis of a complex document and, given the intervening holiday period, it is unusually brief and much of the review period occurred at a time when elected bodies do not meet and staff vacations are at a peak. The short time frame suggests a rush to judgment and the lack of a prudent period for public review. Comment 14-3

If adopted as proposed, the TMDLs will result in additional financial and administrative burdens to our City and to the constituents we mutually serve, with no assurances that these measures will be effective. At a time when the economy challenges each governmental entity to be prudent users of public funds, we believe this proposal carries great risk with no guarantee of a tangible public benefit.

For these reasons and others, we respectfully request that EPA forego the placement of the proposed TMDLs, allow the 2003 standard to demonstrate its effects, and that fully vetted scientific standards be applied to the unique traits of Malibu Creek before any additional corrective measures are adopted.

Sincerely,

Raymond B. Taylor
City Manager

cc: City Council
Leonard E. Polan, District 4 Director, LVMWD
Dave Pedersen, General Manager, LVMWD

Date January 17, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017
Dear Ms. Lin:

Clairidge Homeowners Association of Calabasas writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Why is this matter being rushed for adoption?**
Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet. **Comment 15-1**

2. **What if EPA's findings are wrong again?**
The unnecessary rush toward adopting a TMDL carries great risk. If the proposed TMDL is adopted, reaching the stated water quality objectives can cost hundreds of millions more beyond what has already been invested. But what happens to the rate-paying and taxpaying stakeholders if EPA's new TMDLs prove ineffective? Countless dollars will have been wasted, causing irreparable harm to the owners of homes and businesses in the region. EPA should only proceed with a TMDL when it can guarantee its regulations will produce the desired result. Anything less shows an irresponsible disregard for the ratepayers who will ultimately bear the costs of yet another failed "experiment." This is not hypothetical. As an example, since 1997, for seven months each year, Tapia's treated effluent has been prohibited from Malibu Creek. Yet, that prohibition has not resulted in quantifiable improvements in water quality. However, customers continue to be saddled with the cost for this compliance measure. As a result of these and other regulations, our sewer service costs are among the highest in the region. **Comment 15-2**

3. **Ratepayers are the true "stakeholders"**
While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary

focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor. **Comment 15-3**

For these reasons, the homeowners of Clairidge Homeowners Association of Calabasas call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

A Bennett

Alan Bennett
President

C.A.S.H., Community Association of Saratoga Hills - 5221 Edgeware Dr. Calabasas, CA 91301

January 13, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

The Community Association of Saratoga Hills is concerned about the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed. As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater streams like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Clearly, salinity has an impact on freshwater insects. **Comment 16-1**

The unnecessary rush toward adopting a TMDL carries great risk. If the proposed TMDL is adopted, reaching the stated water quality objectives can cost hundreds of millions more beyond what has already been invested. But what happens to the rate-paying and taxpaying stakeholders if EPA's new TMDLs prove ineffective? Countless dollars will have been wasted, causing irreparable harm to the owners of homes and businesses in the region. EPA should only proceed with a TMDL when it can guarantee its regulations will produce the desired result. Anything less shows an irresponsible disregard for the ratepayers who will ultimately bear the costs of yet another failed "experiment." This is not hypothetical. As an example, since 1997, for seven months each year, Tapia's treated effluent has been prohibited from Malibu Creek. Yet, that prohibition has not resulted in quantifiable improvements in water quality. However, customers continue to be saddled with the cost for this compliance measure. As a result of these and other regulations, our sewer service costs are among the highest in the region.

Comment 16-2

While the passion of advocacy groups wanting to protect our environment is appreciated, we residents have the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by advocacy groups that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; Advocacy groups do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrates a greater degree of scientific rigor. **Comment 16-3**

For these reasons, the homeowners of the Community Association of Saratoga Hills call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Norman L. Buehring

Norman L. Buehring
President, Community Association of Saratoga Hills

P7

CITY of CALABASAS

January 15, 2013

U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017
Attention: Ms. Cindy Lin (WTR-2)

Dear Ms. Lin:

The City of Calabasas wishes to express its concern for the proposed revision of Total Maximum Daily Loads (TMDLs) in the Malibu Creek Watershed.

Cities, homeowners and businesses in the region stand to be adversely affected if the proposed new standards are rushed into place without a proper scientific vetting.

As a community, we have made extensive investments in improving conditions in Malibu Creek and its tributaries. Through changes in building codes to control runoff, trash filtering and oil capture up through more frequent street sweeping and significant investments made by all the region's sewer service ratepayers, we continue to fulfill the mission of a community engaged in the stewardship of the watershed. Many of these activities are being done as a result of the 2003 Malibu Creek Nutrient TMDL and actions of the Los Angeles Regional Water Quality Control Board.

Given the significant investments in these measures, along with others such as the recently adopted Los Angeles County MS4 permit, we request that the EPA take a more deliberate approach to the placement of any more stringent standards for the creek. The reasons are many, among them are:

- No assurances that tighter standards will produce the desired effect, specifically the elimination of algae from Malibu Creek. Comment 17-1
- Malibu Creek has unusual characteristics that do not integrate well with a "one size fits all" approach to stream regulation. Its salinity and native nutrient levels require a specific and scientific approach to its chemistry. Comment 17-2

100 Civic Center Way
Calabasas, CA 91302
(818) 224-1600
Fax (818) 225-7324

- The proposed TMDL has not been given an appropriate amount of time for evaluation. It was released for public review on December 12 and the comment deadline is January 23, 2013. Comment 17-3
- The new NPDES Permit already contains new and stringent requirements for permittees to comply with the US EPA's and LA RWQCB's TMDLs. Local agencies have limited resources that need to spend wisely to comply with the requirements of the new Permit. Comment 17-4

If adopted as proposed, the TMDLs may result in additional financial and administrative burdens to this city and to the constituents we mutually serve, with no assurances that these measures will be effective. At a time when the economy challenges each governmental entity to be prudent users of public funds, we believe this proposal carries great risk with no guarantee of a tangible public benefit.

For these reasons and others, we respectfully request that EPA forego the placement of the proposed TMDLs , allow the 2003 standard to demonstrate its effects and that fully vetted scientific standards be applied to the unique traits of Malibu Creek before any additional corrective measures are adopted.

Sincerely,

Anthony Coroalles
City Manager

Creekside Calabasas Park
C/o Tandem Property Management
6453 Independence Avenue
Woodland Hills, CA 91367
818-883-4202

January 16, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

Creekside Calabasas Park HOA writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

- **Ratepayers have no guarantee the proposed TMDL will work.**
  The EPA states the goals of the 2003 Nutrient TMSL have been met, but now says they are not adequate to address the continuing presence of algae. EPA makes this finding after our community has invested more than $10 million to meet the 2003 standard. In light of this finding, what can EPA produce to convince the rate-paying public its 2012 proposal will be any more effective? Continual revision to more stringent TMDLs may require an agency or city to tear out infrastructure that was just constructed to meet the previous standard. "Trial and Error" is a costly and wasteful practice when it comes to projects of this magnitude, especially in these difficult economic times. Comment 18-1

- **Why is this matter being rushed for adoption?**
  Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet. Comment 18-2

- **Ratepayers are the true "stakeholders"**
  While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents should the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places and extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government

entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrates a greater degree of scientific rigor. Comment 18-3

For these reasons, the homeowners of Creekside Calabasas Park HOA call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised or additional TMDLs until that evaluation is complete.

FOR THE CREEKSIDE CALABASAS PARK HOA

Edward Rollin
President

January 21, 2013

Cindy Lin
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin

As an owner of one of the units at the Las Virgenes Park Townhomes, I am writing to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As a homeowner who will bear the costs for complying with any new standards, through property taxes and sewer service rates, I raise the following issues:

Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet. Comment 19-1

It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater streams like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. DPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a portable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects? Comment 19-2

While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We are concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These governmental entities must follow strict EPA standards for sample collection, lab testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor. Comment 19-3

For these reasons, I call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Bryan Reeder

Bryan Reeder
5608 Las Virgenes Rd., #58
Calabasas, CA 91302

Date

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

Alan and Terry Utter write to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed. Our vendor Las Virgenes Municipal Water District has asked us to express our concerns to you regarding stringent new operating parameters for the Tapia Water Reclamation Facility that serves our region.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Why is this matter being rushed for adoption?** Comment 20-1

Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet.

2. **Malibu Creek has unique characteristics.** Comment 20-2

It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects?

3. **Ratepayers are the true "stakeholders"** Comment 20-3

While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that

p1

Date 1.19.2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

Evelyne Combes writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed. Our vendor Las Virgenes Municipal Water District has asked us to express our concerns to you regarding stringent new operating parameters for the Tapia Water Reclamation Facility that serves our region.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Why is this matter being rushed for adoption?**
Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet. Comment 21-1

2. **Malibu Creek has unique characteristics.**
It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects? Comment 21-2

3. **Ratepayers are the true "stakeholders"**
While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample

collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor. Comment 21-3

For these reasons, **Evelyne Combes** calls upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

E Combes

Evelyne Combes

Jan. 20-13

1 of 2

Too:

Cindy Lin (WTR2)
US Enviromental Protection Agency
So. Cal. Field Office
600 Wilshire Blvd. Suite 1460
Los Angeles, Ca. 90017

Dear Ms. Lin:

As a Las Virgenes Park Home Owner I'm writeing to express concern for the Total Maximum Daily Loads being proposed for the Malibu Creek Watershed. Malibu Creek has unique characteristics: It is not appropriate to compare Malibu Creek to other fresh water costal creek systems. Applying fresh Water standards to a brackish creek is not making sense. EPA concludes the algae impaires the presence of acquatic insects but fails to recognize the freshwater insects do poorly in non-freshwater streams like Malibu Creek or for a creek that has no water in it at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the

Monterey Formation in the watershed was key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part be-cause of its salinity. Are we to believe its salinity has no impact on freshwater insects. Comment 22-1

For these reasons the homeowners of Las Virgenes Park call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLS untill that evaluation is complete.

Sincerely,
Hans Sowa
Las Virgenes Park Homeowner,

CALLEGUAS CREEK

Watershed Management Plan

January 25, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Subject: Comments on Draft TMDLs for Malibu Creek & Lagoon TMDL for Sedimentation and Nutrients to address Benthic Community Impairments, dated December 2012

Dear Ms. Lin:

The Stakeholders Implementing TMDLs in the Calleguas Creek Watershed (Stakeholders) appreciate the opportunity to provide comments on the Draft TMDL for Sedimentation and Nutrients to address Benthic Community Impairments. The Stakeholders are concerned with several aspects of the TMDL that we feel are precedent setting and ahead of policies and science being developed by the State of California. We feel the TMDL could result in significant expenditure of public resources for dischargers in the Malibu Creek watershed, including some stakeholders in the Calleguas Creek Watershed (City of Thousand Oaks, Caltrans, Ventura County, and Ventura County Watershed Protection District) that are not justified by the information and science presented in the TMDL.

Our first concern is that the TMDL is setting targets and allocations for benthic macroinvertebrates that are inconsistent with the direction the State Water Resources Control Board is going with the development of the Biological Objectives for the State of California. While we recognize that the policy is not yet developed, the State has made some determinations and developed scientific information that are relevant and were not considered as part of the TMDL development. These elements include:

1. The SC-IBI is not appropriate for setting biologically based objectives due to the lack of appropriate reference sites and conditions for many locations in California, including the Malibu Creek watershed. Comment 23-1
2. The scientific advisory group for the biological objectives is currently recommending that a multi scoring tool approach be used that does not rely solely on one index (such as the

Comment 23-2

O/E).

3. The science advisory group is recommending consideration of a "grey area" for setting thresholds for biological objectives within which additional data would be collected before determining whether an impairment exists. Comment 23-3

The Malibu Benthic TMDL sets two separate targets based on the SC-IBI and O/E, neither of which are currently being recommended for the biological objectives for California. Additionally, the analysis in the TMDL is based on reference conditions that do not adequately represent the conditions in the Malibu Creek watershed, particularly the presence of the Modelo formation. The Stakeholders feel that it is inappropriate to develop a TMDL that includes targets that are clearly in contradiction with the science being developed by the State of California regarding biological objectives.

Additionally, we feel it is inappropriate to include targets for benthic macroinvertebrates in the TMDL, since they are not pollutants as defined under the Clean Water Act. The US District Court for the Eastern District of Virginia recently ruled that EPA exceeded its authority in establishing a flow-based TMDL[1]. This case ruled that EPA cannot use surrogates in place of regulating pollutants. According to the case, EPA is charged with "establishing TMDLs for appropriate pollutants; that does not give them the authority to regulate nonpollutants." The term "pollutant" is defined in the CWA as "dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water." 33 U.S.C., § 1362(6). Benthic macroinvertebrates are not defined as pollutants by the Clean Water Act. However, there are benthic macroinvertebrate targets in the TMDL and those targets are additionally assigned as instream allocations that are required to be included in the NPDES permits for dischargers. On page 10-13, the TMDL states "The biological response numeric targets for Malibu Creek and Lagoon are directly linked to the allocations and should be placed into the applicable regulatory mechanism (i.e., NPDES permit) in order to ensure that the benthic community condition achieves the water quality objectives. As result, this TMDL is inappropriately regulating nonpollutants through the inclusion of benthic macroinvertebrate targets and corresponding in-stream allocations. Comment 23-4

We feel that the establishment of benthic macroinvertebrate targets at this time could lead to confusion and conflict with the policies being developed by the State of California, the inability to develop a true assessment of problems and impairments in the watershed using science being developed by the State, and could result in significant expenditures of public resources to address a problem that may not exist or may be caused by the natural conditions in the watershed. For these reasons, the Stakeholders would like to request the removal of the SC-IBI, O/E and species richness targets for Malibu Creek and Malibu Lagoon from the TMDL.

In addition, the Stakeholders are concerned with the analysis that was done to justify changes to the nutrient targets and allocations that were established in the 2003 Total Maximum Daily

[1] Virginia DOT v. EPA, E.D. Va., No. 1:12-cv-775, 1/3/13

Loads for Nutrients Malibu Creek Watershed (2003 Malibu Nutrient TMDL).

We are concerned with establishment of new requirements based on analysis associated with the State's Nutrient Policy that is still under development. Additionally, we feel the technical analysis used to support the lowering of nutrient targets and allocations and application of those targets and allocations year round was insufficient. Additionally, we are concerned with the stressor analysis that was conducted to determine that algal biomass was contributing to benthic macroinvertebrate impairments was inadequate and based on analysis methods that are not able to draw definitive linkages between stressors and impacts. We support the technical analysis that is provided in letters by the City of Thousand Oaks and Ventura County that discusses the technical analysis and provides support for this conclusion. Comment 23-5

Finally, the proposed nutrient targets and allocations are likely unachievable with available technology for stormwater and wastewater treatment. For wastewater, any attempt to reach these numbers would require reverse osmosis or other similar treatment. The cost and energy usage associated with these types of treatment processes are significant. The TMDL does not provide sufficient technical information to justify that the additional nutrient reductions will result in improvements to the benthic community impairments. On page 9-12, the TMDL acknowledges that "nutrient concentrations were not limiting on algal growth in Malibu Creek" and the discussion above shows that the linkage between algal biomass and benthic community impacts is flawed. As a result, it is an inappropriate use of public funds to require significant expenditures to address nutrient reductions that the TMDL does not demonstrate will result in achievement of the goals of improving benthic community conditions, particularly when another TMDL exists to control nutrient discharges in the watershed. Comment 23-6

For these reasons, the Stakeholders do not feel the TMDL provides sufficient justification for lowering nutrient targets and allocations in this TMDL. Given the development of a Statewide Nutrient Policy is in development and a TMDL already exists that has not yet achieved all of the nutrient targets in the watershed, it is premature to require further reductions. As a result, we request that the proposed total nitrogen and total phosphorus targets and allocations be removed from the TMDL or set equal to the 2003 Nutrient TMDL targets and allocations.

Finally, we request that the TMDL clarify that the City of Simi Valley is not a responsible party to this TMDL. Although a portion of the City area drains into the Malibu Creek watershed, the area does not contain any urban area or MS4 drainages that require an allocation in the TMDL.

The Stakeholders appreciate your consideration of these comments, please contact me at lmcgovern@ci.camarillo.ca.us or (805) 388-5334 if you have questions or need additional information.

Sincerely,

Lucia M. McGovern

Lucia McGovern, Chair
Stakeholders Implementing TMDLs in the Calleguas Creek Watershed

29438 Mulholland Hwy.
Agoura, CA 91301

21 January 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite #1460
Los Angeles, CA 90017

Dear Ms. Lin:

We, as the ratepayers and stakeholders within the Las Virgenes Municipal Water District (LVMWD), write this letter to express concerns for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Watershed.

As one of hundreds of homeowners in this Malibu Watershed area serviced by the LVMWD, we and our neighbors will bear the costs for complying with any new standards, through property taxes and sewer service rates. We raise the following issues for your consideration:

(a). As ratepayers, we have no assurances nor guarantees that the proposed TMDL will work. The EPA states the goals of the 2003 Nutrient TMDL have been met, **but now** says they are not adequate to address the continuing presence of algae. EPA makes this finding **after our community has invested more than $10 Million** to meet the 2003 standard. In light of this finding, what can the EPA produce to convince us and the other rate-payers that its 2012 proposal will be any more effective? Continual revision to more stringent TMDLs may require an agency, city, or community to tear out infrastructures that were just constructed to meet the previous standard. It appears to us that a "Trial and Error" approach is a costly and wasteful practice when it comes to projects of this magnitude with no guarantees. Please keep in mind that all homeowners, cities and agencies are facing difficult economic times and. therefore cannot to pursue expenditures that have no guaranteed viable returns. Comment 24-1

(b). The EPA appears to be bent on the adoption of this proposal quickly and quietly. Why was the notice of this proposal and the need for the public's response timed so poorly? That is, it was published on 12 December 2012 with a response deadline of 23 January 2013, a time period coinciding with the year's largest holiday season. This practice is typical whenever a proposal needs to be "snuck past" the public; in this case the rate-payers. A clever end-run game the EPA is playing.

Regulations that are hurried into place often result in poor policies, wasteful of community resource, not to mention the increase in costs. In this case, the January 23rd deadline for the public to respond to the draft TDML is not reasonable since this is a poor time frame wherein individuals are busy with holiday tasks on their minds, and public organizations such as Homeowners Associations and agency boards more than likely have cancelled their December – January meetings. This response time is less than 30 days to review the "voluminous" materials.

If the EPA is serious about having the public provide inputs, both for and against, then they should extend the deadline as good faith and integrity. Comment 24-2

(c). Now, let us take a good look at the Malibu Creek which prized as a local "clear stream". It has unique characteristics. It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems.

Applying freshwater standards to a brackish creek does not make sense. The EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater streams like Malibu Creek, or for a creek that has no water at all over 25% of its length in dry weather periods. As a case in point of the latter, we have such a blue-line stream our area. It is called **Triunfo Creek** and it empties into **Malibou Lake** which in turn flows into **Malibu Creek,** which flows to the Pacific Ocean via the **Malibu Lagoon.**

The EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district (LVMWD) that serves our area was formed in the first place. **Malibu Creek** is unsuitable as a potable water sourc, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects? Comment 24-3

A major concern is the unnecessary rush toward adopting a proposed TMDL that potentially carries great risk. If the proposed TMDL is adopted, reaching the stated water quality objectives, it can cost hundreds of millions more beyond what has already been invested by the rate-payers, tax payers, and state holders. But what happens to us if the EPA's new TMDL proves ineffective? Do we end up holding another "empty bag" whose contents were eaten again by the "alligator"?

The public, various Homeowners Associations, and agencies must be given more time to study and analyze this new TMDL proposal for realistic objectives, costs and risks before its adoption.

Thank you,

Sincerely,

Chester & Joan Yabitsu

Date 1/17/2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

Jeff Miller writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed. Our vendor Las Virgenes Municipal Water District has asked us to express our concerns to you regarding stringent new operating parameters for the Tapia Water Reclamation Facility that serves our region.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Why is this matter being rushed for adoption?**

Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet. Comment 25-1

2. **Malibu Creek has unique characteristics.**

It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects? Comment 25-2

3. **Ratepayers are the true "stakeholders"**

While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor. Comment 25-3

For these reasons, Jeff Miller calls upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Jeff Miller

Jess Ruf
20525 Nordhoff Street, Suite 210
Chatsworth, CA 91311 • 818-407-3888

January 16, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

Jess Ruf writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed. Our vendor Las Virgenes Municipal Water District has asked us to express our concerns to you regarding stringent new operating parameters for the Tapia Water Reclamation Facility that serves our region.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Why is this matter being rushed for adoption?**

Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet. **Comment 26-1**

2. **Malibu Creek has unique characteristics.**

It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects? **Comment 26-2**

3. **Ratepayers are the true "stakeholders"**

While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor. Comment 26-3

For these reasons, **Jess Ruf** call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Jess Ruf

From the Desk of Joan C. Lavine
Attorney at Law
9000 Sunset Blvd., Suite 1001
Los Angeles, California 90069, U.S.A.
Office Phones: (213)627-3241; (310)652-2532
Fax Phone: (310)273-4924
E-mail address: JCLavine@aol.com; ADove@aol.com

January 24, 2013

U.S. Environmental Protection Agency
Southern District Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, Ca. 90017
E-Mail: Lin.Cindy@epa.gov
Office: 213-244-1803
Fax: 213-244-1850

Attention: Ms. Cindy Lin, (WTR-2)

Re: Comment, dated January 25, 2013, by Attorney Joan C. Lavine on Draft Total Maximum Daily Loads (TMDLs) for Malibu Creek and Malibu Lagoon

TO WHOM IT MAY CONCERN:

I hereby respectfully submit my comments and review of regarding proposed Total Maximum Daily Loads (TMDLs) for Malibu Creek and Malibu Lagoon in a Draft, dated on or about December 12, 2012.

Comment 27-1

1. I urge and request that a moratorium on setting TMDLs be instituted for at least one year, and that, during that time period, a thorough, intensive re-evaluation be conducted by drawing and testing specimens as frequently as daily, with back-up specimens stored for corroboration, to identify the existence of pollutants and sources and that they be taken at all potential point sources, for proposed permittees and for naturally occurring phenomena such as contaminants and pollutants that may come from non-human sources such as birds, fish, and plants.

The most recently generated information about the Malibu Lagoon, in a published study of the USGS, is <u>negative for contaminants that are human-sourced</u>.

The California State Water Resources Control Board during 2012 published on its website interactive mapping show areas area the Malibu Creek and Malibu Lagoon in the Malibu area to be negative for human-sourced contaminants. I attach copies of those interactive maps for over 100 residences in the Serra Retreat in the vicinity of the Malibu Creek and Malibu Lagoon in Exhibit "B" attached hereto. Note that California State Water Resources Control Board's findings printed on all of those interactive maps as follows: **"No nitrogen-compound impaired waters within 2000 ft. of this point. No pathogen-impaired waters within 2000 ft. of this point."**

I urge that, in setting the Total Maximum Daily Loads (TMDLs) for Malibu Creek and Malibu Lagoon, only that data which is current and reliable, and which is based on the most current, relevant testing techniques, be used. I object to the use by the US EPA, for a decree or modification of it, of any purported data that is more than five years old, as too remote, as irrelevant and as too outmoded in testing techniques. I object that data more than five years old is irrelevant due to changed circumstances, due to recent changes in the law due to a decision this month, January, 2013, and due to its being speculative. Old, outdated data is not a legal factual basis for restricting property rights, business operations or governmental functions and services, or for imposing substantial expense or prohibiting activities.

Comment 27-2

2. During the past five years, several major events, changes in conditions, and studies have taken place within the Malibu Civic Center, where the flows from Malibu Lagoon and the southerly mouth of the Malibu Creek enter the Santa Monica Bay.

a. The only large-scale scientific study of its kind was conducted by accomplished and unbiased scientists, the U.S. Geological Survey of the Malibu Lagoon in or about 2010-2011. It was negative for contaminants tested for from human sources. DNA testing identified tested-for bacteria as being that of animals and plants. See Exhibit "A" attached hereto, the first page of that study. See: "**Sources Of Fecal Indicator Bacteria To Groundwater, Malibu Lagoon And The Nearshore Ocean, Malibu, California, USA",** Izbicki et al., Annals of Environmental Science / 2012, Vol 6, Pages 35-86. Its first page as published on the internet is attached hereto in Exhibit "A". It may be found in full text on the Internet at: http://iris.lib.neu.edu/aes/vol6/iss1/4/

b. Over the last two to three years, the City of Malibu has conducted testing at numerous wells throughout the Malibu Civic Center. This data is reported to be negative for finding contaminants. The City of Malibu officials have custody of that data. I refer you to them to obtain it. I request that the US EPA officials and the U.S. District Court supervising the consent decree involved consider that testing.

c. The City of Malibu has constructed and is operating a special water filtration system called "Legacy Park" which is filtrating water.

d. The California State Parks, funded with State of California bond resources, and the California State Resources Control Board, providing funding from the same bond measure, have razed the Malibu Lagoon. They appear to have taken out ALL life form from a substantial part of the Malibu Lagoon, starting in or about last June, 2012.

Comment 27-3

3. At a workshop conducted by the US EPA at its office on January 14, 2013, at 600 Wilshire Blvd., Suite 1560, Los Angeles, Ca. 90017, I asked the moderator Ms. Cindy Lin if any pollution/contamination testing has been conducted of the Malibu Creek/Malibu Lagoon area within the past year. She responded to my inquiry that there have been three testings done, and that they were done by the US EPA. Since that meeting I have tried to find out from her where and when the tests occurred, what they tested for and what the results are. I have not received that information yet. See copies of some of the e-mails I have sent Ms. Lin this month, January, 2013.

However, I observe that three testings in an entire year of such vast areas falls woefully short of the current relevant data necessary to make such important decisions as those under consideration here.

Comment 27-4

4. Is it true that numerous citations issued to Malibu Civic Center commercial interests and governmental entities for allegedly exceeding NDES permit TMDL limits, issued by the California Regional Water Quality Control Board, Los Angeles Region (Region 4) shortly before the proceedings to adopt a septic ban resolution were dismissed without prosecution for lack of probable cause?

Comment 27-5

5. All property owners, commercial, governmental and residential, within the vicinity of the Malibu Civic Center, the Malibu Creek and Malibu Lagoon should be offered the opportunity to be issued TMDL levels and an NPNES permit.

Comment 27-6

6. The recent U.S. Supreme Court opinion, Los Angeles Co. Flood Control District v. NRDC, U.S. Supreme Court Docket 11-460, 568 US ____ (January 8, 2013), prohibits placing responsibility on a single suspected discharger for discharges known to have multiple other sources.

The U.S. Supreme Court has held that without proof of responsibility for pollution or contamination, an accused cannot be held responsible. Imposition of TMDLs are likely not to be compliant with that decision.

Comment 27-7

7. Where the perceived pollutants are naturally occurring, having been sourced in fauna and flora, and are thus Acts of God, Heal The Bay's and Baykeepers laying blame on human sources lacks a factual basis for setting TMDLs and requiring that property owners be permitted by NPNES permits.

Comment 27-8

8. I urge that a moratorium on setting TMDLs and/or requiring NPNES permits be put into effect and that the US EPA conduct a thorough investigation with currently collected data and testing techniques, such as doing DNA testing, to determine accurately the facts and the state of affairs. To put it a bit more formally, I recommend that a current forensic water quality study be conducted of the Malibu Creek and Malibu Lagoon.

Comment 27-9

9. The drafts under consideration largely lack consideration of the impact on visitors and beachgoers to the Malibu Civic Center area, on residents and residential property owners, and/or business interests and operations and governmental functions and services.

Comment 27-10

10. These draft TMDL proposals lack provisions for those affected by TMDLs and permit requirements to be able to apply for exemption and/or variances to the consent decree, its amendments, and/or requirements and restrictions. They do not grandfather in permits currently issued to those affected in order to prevent harm from retroactive application. I recommend to the attorneys involved that the appropriate provisions be added to ameliorate the potential problems and harm from not providing for same.

Comment 27-11

11. "Notice" published on the internet is not constitutionally adequate notice of these proceedings. It fails to comport with fundamental constitutional Fifth Amendment, U.S. Constitution due process requirements of Mullane v. Central Hanover Bank & Trust Co., 339 US 306, at 318-319 (1950). Given the substantial personal and economic impacts on those affected by the setting of TMDLs, written notice by mail to those property and business owners, and government entities so affected should be given of these TMDL-settings proceedings. These notices should be delivered to the affected property addresses and to the mailing addresses listed with the respective county tax assessors for the affected properties.

Comment 27-12

12. I have been unable to obtain the original consent decree, dated March 23, 1999, in Heal The Bay v. Browner/Jackson, U.S.D.C. (N.D.Cal.) CV-98-4825-SBA. It is not obtainable on PACER. It is not posted on the US EPA or the California State Water Resources Control Board websites, as far as I can determine.

I do not find referenced attachments to the 2010 amendment to the March 23, 1999, Heal the Bay v. Browner/Jackson, i.e. the consent decree, actually attached to the 2010 decree amendment.

When, on December 19, 2012, I attempted to access the documents relevant to this comment regarding the modification of TMDLs for the Malibu Creek and Malibu Lagoon, the December 12, 2012, notice of these TMDL setting hearings contained a link to the US EPA's website and proposals which did not connect to the US EPA draft proposals. I found a webpage, which linked me to a 44-page draft, not a 196-page one, and which did not include an appendix with proposed TMDLs. This caused me difficulty in locating the documents relevant to these comments.

Very truly yours,

Joan Lavine
California State Bar No. 048169
Phone: 213-627-3241
E-mails: ADove@aol.com, JCLavine@aol.com

Attachments:

Exhibit "A" – First page of "**Sources Of Fecal Indicator Bacteria To Groundwater, Malibu Lagoon And The Nearshore Ocean, Malibu, California, USA",** Izbicki et al., Annals of Environmental Science / 2012, Vol 6, Pages 35-86.

Exhibit "B" – California State Water Resources Control Board 2012, Interactive map for over 100 residential properties in the Malibu Civic Center's Serra Retreat residential area near and contiguous with the Malibu Creek and Malibu Lagoon.

Exhibit "C" – A sampling of e-mails Joan Lavine has sent to US EPA Assistant Administrator regarding the setting of TMDLs during January, 2013.

Delivered via E-mail to: Lin.Cindy@epa.gov and to the US EPA by hand-delivery

January 17, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin,

We are writing to express our concern regarding the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners in close proximity to a portion of Malibu Creek we will be directly affected by any new standards. Through our property taxes and sewer service rates, the costs associated with compliance will be borne by us.

We ask that you consider the following issues:

The draft TMDL document, released for review on December 12, 2012, with a deadline for comments set for January 23, 2013, is voluminous. This time frame, less than thirty business days, is insufficient to allow for reasonable review and comment by the public. Comment 28-1

Applying freshwater standards to a brackish, non-freshwater stream like Malibu Creek does not make sense, especially in light of the fact that it carries no water at all over 25% of its length in dry weather periods. Malibu Creek is unsuitable as a potable water source, in part because of its salinity. The salt impact of the Monterey Formation in the watershed, a key reason why the water district that serves our community was first formed, warrants consideration by EPA with regard to its affect on freshwater insects. Comment 28-2

We're concerned that EPA should not give greater weight to recent data compiled by advocacy groups (NGOs) and ignore data scientifically collected by government agencies over the last four decades in accordance with strict EPA standards. We ratepayers fund those stringent government testing programs. We urge EPA to thoroughly consider this information in its analysis when formulating regulations. Comment 28-3

We call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, and give appropriate opportunities to homeowners to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Joe Chilco Deborah Chilco

Joe and Debbie Chilco
4148 Arroyo Willow Lane, Calabasas Hills, CA 91301

January 20, 2013

Ms. Cindy Lin
U.S. EPA
Southern California Field Office
600 Wilshire Blvd. Suite 1460
LA, CA 90017

Dear Ms. Lin,

As long time residents of Malibou Lake, we want to express our concern for the TMD Loads that are being proposed for the Malibu Creek Watershed. Las Virgenes Municipal Water District, our vendor, has suggested we express our concerns regarding the stringent new operating guidelines for the facility that serves our region (Tapia Reclamation) since it is the homeowners who will bear the costs for adhering to these new standards.

Why are these regulations being hurried into place? The public has been given less than thirty business days to review an abundance of material at a time when most homeowner associations and local governments do not meet. **Comment 29-1**

We also wonder why Malibu Creek is being compared to other fresh water coastal creek systems? Freshwater standards should not be applied to a brackish creek---one that has NO water at all over 25% of its length in dry periods. In fact the salt impact of the Monterey Formation in the watershed was a primary reason that the water district that serves our area was formed. **Comment 29-2**

While we admire the passion of advocacy groups working to protect our environment, why should we residents shoulder the burden of funding the compliance measures they promote? Their recently gathered data (that supports their positions) ignores the scientific data collected by government agencies of the past four decades. These agencies have followed strict EPA standards for sample collection, lab testing and personnel certification---all funded by rate payers!!! **Comment 29-3**

So it is for these reasons that we call on the EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with opportunities given to the region's homeowners and businesses to examine and comment on the data's findings. EPA should not proceed with adopting new, revised or additional TMDLs until that evaluation is complete.

Sincerely,

John M. Douglass, M.D.
Sue Nan Douglass

John M. Douglass, MD
Sue Nan Douglass

From: Johntommy Rosas <tattnlaw@gmail.com>
To: Cindy Lin/R9/USEPA/US@EPA
Cc: "Newman, Jenny@Waterboards" <Jenny.Newman@waterboards.ca.gov>, Dave Singleton <ds_nahc@pacbell.net>

Date: Wednesday, January 23, 2013 02:01PM
Subject: Re: YRIS- Comment Deadline Extended for Malibu Creek and Lagoon Sedimentation/Benthic Impairments and Ventura River Pumping and Water Diversions TMDLs

---

Cindy ,

we still need to work on cultural resource issues on this report

I hope it wont get skipped like what happened at ballona

we are requesting a continuance until that can be completed

parts of "malibu" area is within our territory **Comment 30-1**

thanks jt

On Wed, Jan 23, 2013 at 1:46 PM, <lyris@swrcb18.waterboards.ca.gov> wrote:

> PUBLIC NOTICE
>
> **Comment Period Extended**
>
> USEPA Draft TMDLs for Malibu Creek & Lagoon and Ventura River Reaches 3 & 4
>
> Due to public request, USEPA is extending the comment period for the Draft TMDLs currently for public review. The deadline for Malibu Creek and Lagoon sedimentation and benthic community impairments and Ventura River Reaches 3 & 4 pumping and water diversion related water quality impairments are extended to **5pm, Friday, January 25, 2013.**
>
> Please submit comments to Cindy Lin at lin.cindy@epa.gov or mail to 600 Wilshire Blvd., Suite 1460, Los Angeles, CA 90017.
>
> For Questions, please call Cindy Lin at 2130244-1803.
>
> ---
>
> You are currently subscribed to reg4_tmdl_malibu as: tattnlaw@gmail.com.
>
> To unsubscribe click here: leave-433754-515368.e33fb126f4ce407890ad13ac43991c71@swrcb18.waterboards.ca.gov

--

JOHN TOMMY ROSAS
TRIBAL ADMINISTRATOR
TRIBAL LITIGATOR
TONGVA ANCESTRAL TERRITORIAL TRIBAL NATION

TRUTH IS OUR VICTORY AND HONOR IS OUR PRIZE >TATTN ©

King, Amy

From: Lin.Cindy@epamail.epa.gov
Sent: Monday, March 11, 2013 12:25 PM
To: King, Amy
Subject: Fw: Kit Kerner/ Las Virgenes Municipal Water District - TMDLs
Attachments: LVMWD2012.jpg

Categories: Malibu

United States Environmental Protection Agency

Cindy Lin, D. ENV.
US EPA R9 Southern CA Office
600 Wilshire Blvd, Ste 1460
Los Angeles, CA 90017
Office: 213.244.1803 Cell: 858.699.1255

----- Forwarded by Cindy Lin/R9/USEPA/US on 03/11/2013 11:23 AM -----

From: "Kit Kerner" <kitkerner@dslextreme.com>
To: Cindy Lin/R9/USEPA/US@EPA,
Cc: <kitkerner@dslextreme.com>
Date: 01/22/2013 10:05 AM
Subject: Las Virgenes Municipal Water District - TMDLs

Dear Ms. Lin,

I have lived in Calabasas, CA for over two decades and this is the first time I'm writing you, the Environmental Protection Agency (EPA) for that matter. As a home owner my wife and I are always being asked to "help on" in some way, by all kinds of groups. All of the time, most of the time, these requests will result in a benefit to our household. I have no doubt that you get the same kinds of requests.

I'll keep this real shot and not to script that the Las Virgenes Municipal Water district (LVMWD) provided.

I do object to the proposed updates to the Total Maximum Daily Loads (TMDLs) to the Malibu Creek Watershed. I object because it reads as if there was NOT enough testing and the results shared with the LVMWD let alone the public. Comment 31-1

I do not understand the rush in this matter. While I have lived in Calabasas for a good period of time, I have lived and played in the Malibu area for six decades. I do not see how there is a reason to expedite this matter. There has been no notification that I am aware of. Comment 31-2

When one aspect of a micro-environment is changed something else will have to give. What impact will this have on the insects have on the larger creatures in the Malibu Creek area? I have already seen many of the larger four-legged animals decrease because man has upset the environment. Comment 31-3

Where else has the TMLD worked successful and have the standards and updates over seven years or more? Comment 31-4

I'm sorry, when I dug into this matter a little bit to see what was being asked I do not see how this is going to be worth the time and the (here it comes!) money to pursue this matter. Comment 31-5

I was a Data Analyst is my previous life. I looked at the bits and the bytes of billing records the phone company would produce when a billable phone call was made. It was time consuming and necessary because we had to be accurate for our customers. Technically the EPA works for me, the EPA is employed by the public and the public has to "trust" to a certain degree the steps the EPA take. The LVPMWD works for the public as well. Prove to them that this is necessary to the health of the public and that it is necessary to do so. Comment 31-6

Ms. Lin, I attached a picture I took at the LVMWD last year. From time to time they open their doors and show the public how they do their job. It may be a bit of a unique look at one of the bays of water held in the mountains and really has nothing to do with the matter at hand; I just wanted to share it with someone else. The picture itself is pretty wide, so it is a copy. Comment 31-7

Thank you for letting me share what is on my mind,

Respectfully,

Howard S. Kerner III (Kit)

********************** ATTACHMENT NOT DELIVERED *******************

This Email message contained an attachment named
image001.jpg
which may be a computer program. This attached computer program could contain a computer virus which could cause harm to EPA's computers, network, and data. The attachment has been deleted.

This was done to limit the distribution of computer viruses introduced into the EPA network. EPA is deleting all computer program attachments sent from the Internet into the agency via Email.

If the message sender is known and the attachment was legitimate, you should contact the sender and request that they rename the file name extension and resend the Email with the renamed attachment. After receiving the revised Email, containing the renamed attachment, you can rename the file extension to its correct name.

For further information, please contact the EPA Call Center at (866) 411-4EPA (4372). The TDD number is (866) 489-4900.

********************** ATTACHMENT NOT DELIVERED **********************


KODAK EPP 5005
KODAK EPP 5005
KODAK
E
6A
7
7A
8
8A
9
9A
10

SOUTHSHORE

PROPERTY OWNERS ASSOCIATION

January 25, 2013 FAX TRANSMISSION 818/251-2219

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

The Southshore P.O.A. writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Malibu Creek has unique characteristics.** Comment 32-1

It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects?

2. **What if EPA's findings are wrong again?** Comment 32-2

The unnecessary rush toward adopting a TMDL carries great risk. If the proposed TMDL is adopted, reaching the stated water quality objectives can cost hundreds of millions more beyond what has already been invested. But what happens to the rate-paying and taxpaying stakeholders if EPA's new TMDLs prove ineffective? Countless dollars will have been wasted, causing irreparable harm to the owners of homes and businesses in the region. EPA should only proceed with a TMDL when it can guarantee its regulations will produce the desired result. Anything less shows an irresponsible disregard for the ratepayers who will ultimately bear the costs of yet another failed "experiment." This is not hypothetical. As an example, since 1997, for seven months each year, Tapia's treated effluent has been prohibited from Malibu Creek. Yet, that prohibition has not resulted in quantifiable improvements in water quality. However, customers continue to be saddled with the cost for this compliance measure. As a result of these and other regulations, our sewer service costs are among the highest in the region.

SOUTHSHORE
PROPERTY OWNERS ASSOCIATION

3. **Ratepayers are the true "stakeholders"** Comment 32-3

While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor.

For these reasons, the homeowners of Southshore P.O.A. call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Al Miller, President
Southshore P.O.A.

Renaissance at Westlake
Homeowners Association

January 23, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite #1460
Los Angeles, CA 90017

Dear Ms. Lin:

Renaissance at Westlake Homeowners Association writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. Ratepayers have no guarantees the proposed TMDL will work.

The EPA states the goals of the 2003 Nutrient TMDL have been met, but now says they are not adequate to address the continuing presence of algae. EPA makes this finding after our community has invested more than $10 million to meet the 2003 standard. In light of this finding, what can EPA produce to convince the rate-paying public its 2012 proposal will be any more effective? Continual revision to more stringent TMDLs may require an agency or city to tear out infrastructure that was just constructed to meet the previous standard. "Trial and Error" is a costly and wasteful practice when it comes to projects of this magnitude, especially in these difficult economic times. Comment 33-1

2. Why is this matter being rushed for adoption?

Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner association and local government entities do not meet. Comment 33-2

Renaissance at Westlake Homeowners Association

3. Malibu Creek has unique characteristics.
It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects? **Comment 33-3**

For these reasons, the homeowners of Renaissance at Westlake Homeowners Association call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

E. Goldman (JM)

Elaine Goldman
President, Renaissance at Westlake HOA

LAS VIRGENES UNIFIED SCHOOL DISTRICT
4111 N. LAS VIRGENES ROAD
CALABASAS, CALIFORNIA 91302
Telephone: (818) 880-4000
Fax: (818) 880-4200
www.lvusd.org

January 17, 2013

Ms. Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

RE: PROPOSED TMDLs for Malibu Creek

Dear Ms. Lin:

Las Virgenes Unified School District has concerns regarding the proposed Total Maximum Daily Load (TMDLs) standards being proposed for the Malibu Creek Watershed.

Las Virgenes is located entirely within the watershed and operates several campuses in the subject area. While we support responsible environmental standards, we are very concerned with the uncertainty that the new standards will achieve the desired goals, given the experience with those established in 2003. We are significantly impacted when sewer service costs escalate; water and wastewater treatment represent significant expenses to our school district and the uses of those funds have a direct impact on the level of instruction we are able to provide to our students in the classroom. **Comment 34-1**

We are well aware of the many steps that have already been taken in attempts to improve conditions in Malibu Creek. We understand that previous standards, which were intended to reduce or eliminate the presence of algae in Malibu Creek, have not met expectations. Has it occurred to EPA that the science or reasoning behind the previous standards are in some way deficient? Nevertheless, those shortfalls have come at a very high cost to the community in terms of the resources lost to costly and failed strategies, for a creek where algae may be an entirely natural occurrence. **Comment 34-2**

Before any new standards for Malibu Creek are adopted, EPA needs to assure the community its science is sound, its methods will be effective and the costs for attaining compliance with the these standards will be proportional to the benefits derived, especially when those costs have a direct impact on the quality of education delivered to each student in our school system. **Comment 34-3**

Sincerely,

Daniel Stepenosky, Ed.D.
Superintendent

January 15, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

Louise Donahue writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed. Our vendor Las Virgenes Municipal Water District has asked us to express our concerns to you regarding stringent new operating parameters for the Tapia Water Reclamation Facility that serves our region.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

Why is this matter being rushed for adoption? Comment 35-1

Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet.

Malibu Creek has unique characteristics. Comment 35-2

It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects?

Ratepayers are the true "stakeholders" Comment 35-3

While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor.

For these reasons, **Louise Donahue** call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Louise Donahue

MALIBOU LAKE MOUNTAIN CLUB, LTD.
29033 West Lake Vista Drive • Agoura, California 91301
TEL. 818-889-1211 • FAX 818-889-8214

January 14, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

Malibou Lake Mountain Club, Ltd. writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed. Our vendor Las Virgenes Municipal Water District has asked us to express our concerns to you regarding stringent new operating parameters for the Tapia Water Reclamation Facility that serves our region.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Why is this matter being rushed for adoption?** Comment 36-1
Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet.

2. **Malibu Creek has unique characteristics.** Comment 36-2
It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects?

3. **Ratepayers are the true "stakeholders"** Comment 36-3
While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data

scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor.

For these reasons, **the homeowners of Malibou Lake Mountain Club, Ltd.** call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Terri Endsley

Terri Endsley
Operations Manager

January 25, 2013

Cindy Lin
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

via email: lin.cindy@epa.gov

RE: Comments on the draft Total Maximum Daily Loads (TMDLs) for Sedimentation and Nutrients to address Benthic Community Impairments in Malibu Creek and Lagoon

Dr. Lin:

The Malibu Surfing Association (MSA) formed in 1961 as one of California's first surfing clubs. The MSA is an all-volunteer, nonprofit
organization dedicated to the fellowship of surfing and to the stewardship of our home break, world-famous Malibu Surfrider Beach. Our club membership represents over 750 years of cumulative surfing experience at Malibu. We advocate for the protection and preservation of this historic surfing spot and a positive experience for Surfrider's 2.5 million annual visitors. In over 50 years since our club's founding, we remain intimately associated with the past, present, and future of Malibu surfing and of Surfrider Beach.

We submit the following comments on the Draft Total Maximum Daily Loads (TMDLs) for Sedimentation and Nutrients to address Benthic Community Impairments in Malibu Creek and Lagoon ("Draft TMDL" or "TMDL").

1. HUMAN HEALTH AND RECREATION **Comment 37-1**

We strongly support the proposed nutrient limits for total nitrogen (TN) and phosphorus (TP) and reduction in sedimentation. Although limits on these parameters may not have a direct connection to keeping water safe for human recreational uses, we believe that by ensuring healthy benthic macroinvertebrate communities in these waters, you also benefit humans, given that water quality standards for aquatic life are typically stricter than those for human drinking water or human health.

2. SEDIMENT LOAD REDUCTION

Beach Preservation and the Wave at Surfrider Beach **Comment 37-2**

Surfrider Beach was recently recognized as the very first World Surfing Reserve (2010). MSA recognizes the value and benefits of natural sediment transport from the watershed to the coast, which provides the wide sandy beaches that our members value, establishes the foundation for the very waves which attract millions of people to Malibu each year, and this sediment deposition provides critical protection to private property and historic property along Malibu's coast (e.g., Malibu Colony, Adamson Estate, etc.).

Surfrider Beach, among countless other beaches in Southern California, is sand-starved due to numerous unnatural structures reducing natural transport of sediment downstream to the coast, including roads and freeways, and (specific to Malibu Creek) Rindge Dam, which has been retaining over 600,000 cubic yards of silt, sand, and cobble for nearly a decade.

MSA supports a reduction in unnatural or contaminated sediment, as long as the long-term vision is to restore the sediment flow back to a more natural (pre-development) state. Our organization believes it would be appropriate for the EPA and Regional Board to consider reviewing or reopening this TMDL if/when Rindge Dam is removed.

3. ONSITE WASTEWATER SEPTIC SYSTEMS **Comment 37-3**

Surfrider Foundation echoes the comments made in section 5 titled "Other concerns" found in Heal The Bay's comment letter as follows;

The State Water Resources Control Board's recently adopted Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (OWTS Policy) requires the Regional Board to adopt a TMDL implementation plan for Malibu Creek in the near future. USEPA should help shape this plan by providing more detail through its implementation recommendations in the TMDL. The recommendations should be even more stringent than those outlined in Tier 3 of the OWTS Policy. For instance, EPA should recommend a sanitary survey to count, identify, map, and assess the condition of septic systems within 600 feet of Malibu Creek and its tributaries. Existing monitoring data and observations, such as that collected by Sikich et al. (2012) can be used to aid in this effort.

Clusters of septic systems that do not utilize advanced treatment may be identified to aid in the implementation of the TMDL. All new and replaced systems within 600 feet of Malibu Creek and its tributaries should be required to include advanced treatment to a reduction of 15 mg/L of nitrogen, and meet the other supplemental treatment requirements of the Septic Policy, effective immediately after adoption of the TMDL. The TMDL should also recommend a schedule that requires compliance with the load allocations as soon as practicable, given the watershed-specific circumstances.

SUMMARY
In summary, the Malibu Surfing Association supports the proposed limits for nutrients in the Malibu Creek Watershed. We support reduction in unnatural or impaired sedimentation and a restoration to natural sediment levels to promote suitable habitat for benthic macroinvertebrates and re-establish natural conditions on the beach and in the surf zone.

Over 2.5 million annual visits take place at Surfrider Beach. For us recreating in these waters, and being intimately involved in the future of surfing there, we ask that you take every reasonable step to develop TMDL limits which protect its upstream waters.

Thank you for the opportunity to comment. Please feel free to contact me with questions.

Sincerely,

Michael Blum
Stewardship Chair
Malibu Surfing Association
michael.blum@gmail.com

From: Marcia Hanscom <wetlandact@earthlink.net>
To: Cindy Lin/R9/USEPA/US@EPA

Date: Friday, January 25, 2013 02:12PM
Subject: TMDL standards - Malibu

Dear Ms. Lin:

We urge the EPA to adopt NEW TMDL standards that are reflective of the new, current science that informs us that a great deal of the information the prior TMDL standards were based on was erroneous.

1. New DNA analysis by Berkeley Lawrence Labs concludes that much of the bacteria at Malibu Lagoon and immediately offshore at Surfrider Beach is NOT coming from human sources, nor from pinnepeds, nor from birds - but rather from other NATURAL SOURCES. As you likely know, bacteria is a one of the fundamental components of our various ecosystems. Bacteria, especially regenerative bacteria in a coastal marsh is NATURAL and, in fact, crucial for the continuance of life in that ecosystem.

Your own EPA published report from the last TMDL adopted standards stated specifically that if the bacteria was found to come from natural sources, then the standards ought to be changed to reflect those realities. For more information about the Berkeley Lawrence Labs DNA analysis, please contact the City of Malibu and the US Geological Survey - both of which have access to the tests and results. **Comment 38-1**

2. During the course of litigation over the project at Malibu Lagoon during the past two years, it was made known that the state of Malibu Lagoon was a natural state. i.e., the Ruppia - Submerged Aquatic Vegetation present in the lagoon is NATURAL and, in fact, increasingly rare. Some of the assumptions that the TMDL standards were based on presumed, incorrectly, that a higher salinty and circulation was desirable, when - in fact - the historical nature and geographical and geological features of the lagoon - tell a different story. The species themselves, like the endangered Tidewater Goby, also informs that this species has evolved to like STILL, CALM water - not highly circulated water - and this still water fosters the growth of SAV, which is serves as refugia for the Tidewater Goby and a store-house of food that the Goby requires. (see attached declarations by biologists Robert van de Hoek and Wayne Ferren.) **Comment 38-2**

3. Dr. Randall Orton from the Las Virgenes Municipal Water District has provided interesting information about the Modelo formation that is well-known to geologists in the region. The minerals that come from this formation could be supporting the higher TMDLs of phosphorous, and his research requires greater scrutiny and consideration. **Comment 38-3**

4. Finally, the historical nature of Malibu Lagoon and its environment must be taken into consideration when establishing the TMDL standards for this water body. Please review and incorporate the information within the public documents submitted by Dr. Travis Longcore, which speak to these issues. **Comment 38-4**

All of these important sources of information and scientific findings must be included in setting any TMDL standards in the future.

Thank you!

Submitted by:
Marcia Hanscom
Executive Director
Wetlands Defense Fund
protecting & restoring Wetlands ~ the Cradle of Life
322 Culver Blvd., Ste. 317
Playa del Rey, CA 90293
(310) 821-9040

&

Managing Director
CLEAN ~ Coastal Law Enforcement Action Network
enforcing laws protecting the California coast

Attachments:

LongcoreMalibuLagoon.pdf	LongcoreReMalibuLagoonRevocation.pdf	FERREN,AUDUBON,VANDEHOEK,CLEAN-WDF.pdf	Roy Final Dec.pdf
W++Ferren+Dec+(Final)[1].pdf	van de Hoek 2nd Dec.pdf		

Impending Malibu Lagoon "Restoration" Destructive and Misguided

Travis Longcore, Ph.D.
(310) 247-9719
longcore@usc.edu

The following assessment of the impending Malibu Lagoon project is provided in hopes that any officials with the power to do so will halt this destructive and futile project and instead develop plans that incorporate current understanding of the processes that govern coastal estuaries in a manner that will protect rather than harm native species that depend on these unique seasonally tidal wetland ecosystems.

Popular media accounts of the impending start of the Malibu Lagoon Restoration and Enhancement Project characterize it as "emotional activists vs. scientists" — implying that all of those opposed to the project are simply ill-informed and that all scientists agree that the project is both necessary and prudent. As a scientist, I disagree. The rationale upon which the project is based does not withstand scrutiny and reveals a fundamental misunderstanding of the historical and current forces that created and maintain the Malibu Lagoon. I have worked on the general topic of the historical characteristics of southern California rivers and estuaries for the past seven years and been part of research teams investigating the historical nature of these systems and the natural processes that form them.

The fundamental complaint about Malibu Lagoon from project proponents is that it lacks water circulation and as a consequence has low dissolved oxygen and sedimentation with nutrient rich waters and soils from the Malibu Creek watershed. Their solution is to scrape out the sediments in the west lagoon and reconfigure the Lagoon to increase tidal flow. But to expect this to change the nature of the lagoon is a mistake: Malibu Lagoon was historically and will in the future tend to be brackish and prone to sedimentation and low dissolved oxygen. In fact, it is likely that in its pre-European settlement state it would not have met current water quality standards. To understand this, consider the historical extent and nature of the area where Malibu Creek meets the ocean.

Early maps of Malibu Lagoon, such as the Coast Survey Sheet T-1432 from 1877, do not show a tidal marsh with a singe main channel and branching arms. The reproductions I have seen of this map are not high resolution, but it appears that Malibu Creek swings out to the west and then forms a lagoon behind a barrier beach. There seems to be a marsh, not an extensive one, but rather one with maybe two channels branching off at 90 degree angles from a main channel. The same configuration is evident in the 1903 topographic map, except the stream has moved to the east. Subsequent maps show these features in various degrees of being filled in by development. Nowhere have I ever seen evidence of the characteristic dendritic network of a fully tidal salt marsh. Which brings us to a second point. Malibu is, and has been for at least hundreds of years, a closing estuary.

The flow from Malibu creek is insufficient to keep the longshore wave action from forming a berm during the summer. Malibu Creek is closed completely from the ocean about half of the year. This might change from year to year, but the pattern of annual closure is a natural part of this system. The tendency for a system such as this will be that back channels will slowly sediment in until they are cleared out by a big flood or a shift in the creek's route. That is, the lagoon of recent history (last 200 years) was not a set of channels created and maintained by tidal flow, but rather was the remnants of former creek routes scoured out during extreme flooding events and subsequent movement of the creek mouth. The creek would change routes across the whole floodplain of the Civic Center area, with a tendency for the mouth to migrate to the east with the longshore flow of wave action over time, until constrained by the bluffs at the eastern edge.

So long as it is not jettied open to the ocean, we should not expect the Malibu Lagoon to behave like a fully tidal salt marsh, even if it is graded to look like one. Yet, this is the apparent goal of the project proponents. They want to change the water quality by introducing more tidal flushing. They expect this to reduce sedimentation and increase dissolved oxygen. Although not an explicit goal of the project, many proponents have argued the dredging will reduce bacteria in the lagoon. Some have also suggested that this will help deal with invasive plant species by making the water saltier. But all of this reflects an attempt to make the lagoon into something it historically was not and that is not supported by the physical processes currently in place. The back channels of the lagoon will have low dissolved oxygen. As long as there are nutrient rich sediments coming down Malibu Creek the lagoon will tend to silt up and accumulate these sediments. During the summer the lagoon will close and there will be a heavy freshwater influence. And because conditions very similar to these occurred in California estuaries for hundreds and thousands of years, native species are adapted to them. Tidewater gobies — the endangered fish that breeds very successfully in the lagoon — has an enormously wide range of tolerance for dissolved oxygen and loves the submerged aquatic vegetation that some see as an indicator of poor water quality. It is doing very well in the lagoon as is.

The field of coastal wetland restoration in California is dominated by people who believe that the only good wetland is one that is fully tidal year round. So we see various "restorations" that consist of constructing jetties to artificially open to the ocean naturally closing estuaries— Bolsa Chica Wetlands, Batiquitos Lagoon, San Dieguito Lagoon, Talbert Marsh, and the current plans for the Ballona Wetlands. Each time this is done, some of the native biodiversity and natural variation in California estuaries is lost (see our detailed report on this topic). And because these "restorations" are attempts to create a condition not supported by the physical processes of the place, they also involve incredible expense and energy to dredge these artificial openings to keep them from silting in.

Which brings us to a final point about the Malibu Lagoon project. The planning documents for the project indicate that if the tidal flows in the newly constructed channels falls below those at some reference marshes, then heavy equipment could be used (again) to make sure that the Lagoon behaves like the designers intended by dredging the channels. The reference marshes listed to trigger such actions are all systems that are artificially jettied open (Talbert Marsh, Batiquitos Lagoon, and Carpinteria Marsh) and are dredged to stop the natural process of mouth closure. Using these as references for Malibu Lagoon reflects that managers both misunderstand the natural dynamics of Malibu Lagoon — the flow in channels of a naturally closing estuary should not be expected to match that of one that is jettied open — and ensure that they will be fighting those natural processes for years to come to get it to behave more like what they want it to be, instead of what it is. Furthermore, tidewater gobies are no longer found at these "reference" marshes, and could never be reintroduced because of management for a permanently open channel mouth.

If the restoration proceeds, and I sincerely hope it does not, I predict that it will fare little better than the previous attempt ending in 1983 on the metrics that motivate project proponents. In the short run it may increase dissolved oxygen and increase salinity (which would actually be a degradation of habitat for the original native flora and fauna adapted to a brackish marsh). In the long run, sedimentation will continue, nutrient levels will be high, water will stagnate in the channels, and it will be full of bacteria. We should only be upset about these things if they are caused by humans (e.g., polluted runoff and increased erosion from the watershed). These problems have to be dealt with before the water gets to the lagoon. Even if they are cleaned up entirely the lagoon might not meet arbitrary water quality standards, but then again it probably would not have met those standards 200 years ago either!

Certainly things could be done to promote native biodiversity at Malibu Lagoon. They should not, however, be premised around a misunderstanding of what the natural processes will support. And they should recognize that the native biodiversity of Malibu Lagoon is that associated with either the main channel or brackish marshes and stagnant water, not a fully tidal saltmarsh. The area where the parking lot was removed could be graded down and added to the wetland area, but there is no need or long-term benefit to reconfiguring the channels into some idealized saltmarsh form as if it were San Francisco Bay. Even as rare as saltmarsh habitat is in California, the brackish and freshwater wetlands of the naturally closing systems (which historically were the majority) are even more rare and we should resist the temptation to homogenize them.

To claim that Malibu Lagoon is "dying" is to fail to grasp what kind of wetland it is. It is not dying. It is simply approaching equilibrium with the physical processes of the watershed and some people have decided that they would prefer a different type of wetland. The lagoon supports significant biodiversity, just not the same species as one would find in a permanently tidal salt marsh. We should no more expect a seasonal creek to be river or a meadow to be forest than to expect a lagoon that is closed to the ocean for half of the year to have the same water characteristics as those that are flushed year round by the ocean. The current "restoration" will be destructive to the natural community that has developed since the first dredging project (including the extremely successful reintroduction of endangered tidewater gobies), have obvious impacts to the waterfowl that use the lagoon for nesting and foraging, and provide little benefit that could not instead be achieved in a far less destructive manner.

About the Author*

Dr. Travis Longcore is Science Director of The Urban Wildlands Group and President of the Board of Directors of the Los Angeles Audubon Society. He is also Associate Research Professor at the University of Southern California Spatial Sciences Institute and Associate Adjunct Professor at the UCLA Institute of the Environment and Sustainability where he has taught, among other courses, Bioresource Management, Environmental Impact Analysis, and the Environmental Science Practicum. He was graduated *summa cum laude* from the University of Delaware with an Honors B.A. in Geography, holds an M.A. and a Ph.D. in Geography from UCLA, and is professionally certified as a Senior Ecologist by the Ecological Society of America. He has worked with research teams to describe the historical ecology of rivers and estuaries along the southern California coast, including the San Gabriel River, Ballona Creek, Santa Clara River, Ventura River, and Ventura County coastal wetlands. These reports can be downloaded at: http://www.urbanwildlands.org/longcore.html in the "Historical Ecology" section.

*Affiliations are provided for identification purposes only and do not indicate endorsement by any organization, institution, or individual.

TRAVIS LONGCORE, PH.D.
P.O. Box 24020
Los Angeles, CA 90024-0020

August 7, 2012

W4.5a

Mary Shallenberger, Chair
California Coastal Commission
89 South California Street, Suite 200
Ventura, CA 93001-2801

Re: Revocation Request for Application No. R-4-07-098 "Wetland Habitat Restoration and Enhancement Plan for Malibu Lagoon "

Dear Chair Shallenberger and Commissioners:

It is a matter of public record that I oppose the Malibu Lagoon Restoration & Enhancement Plan. I have circulated a letter outlining the scientific reasons for this opposition, a copy of which was attached to the request for revocation that was submitted to the Commission. I will not reiterate the points made there, since this item pertains to whether State Parks intentionally presented inaccurate, erroneous, or incomplete information to the Commission in conjunction with the coastal development permit application for the project. The events that have unfolded since this Commission approved the project have confirmed that the application was inaccurate and incomplete.

In particular, State Parks did not provide the Commission (or the public) with the information that a California Species of Special Concern, the south coast marsh vole (*Microtus californicus stephensi*), was present in some numbers on the project site.

California State Parks was the lead agency for the CEQA compliance for the Malibu Lagoon project and presented an allegedly complete EIR to the Commission. This EIR included an assessment of native mammals on the site from three days of surveys in 2005 that yielded only a single black rat. Commenters on the EIR pointed out the need to further characterize the small mammal community, and indeed this was part of the Final Malibu Lagoon Restoration and Enhancement Plan (p. 44). The consultant relied upon by the State made the claim that "Most researchers appear to agree that salt marshes are unfavorable for most small mammals" and apparently no further investigation was made. Of course, this claim was incorrect, and several sensitive species of small mammals are found in coastal marshes in southern California (see e.g., von Bloeker 1932).

To rely on this statement reveals an embarrassing lack of knowledge of its own biological resources on the part of California State Parks. There are two California Species of Special Concern that are restricted to salt marshes in southern California. These are the south coast marsh vole and the southern California salt marsh shrew (*Sorex ornatus calicornicus*) (von

Bloeker 1932). Any competent biological consultant and especially a state agency with stewardship responsibility over biological resources would know that a salt marsh in Los Angeles County is possible habitat for these species. Jack von Bloeker described both of these species in 1932, with the range for the shrew described as “coastal marshes in Los Angeles and Ventura counties, California,” and the meadow vole as “coastal marshes in Orange, Los Angeles, and Ventura counties, California” (von Bloeker 1932).

Yet, no mention is made in any of the documents submitted to the Commission of even the possibility that a sensitive species would be found in the habitats to be removed by this project. Either someone at State Parks intended for this possibility to be ignored, or State Parks is woefully and *willfully* ignorant about the sensitive species on its own property. Even a cursory investigation of a distribution map for *Microtus californicus* shows that Malibu Lagoon is within the range of the subspecies *stephensi* (Gill 1984).

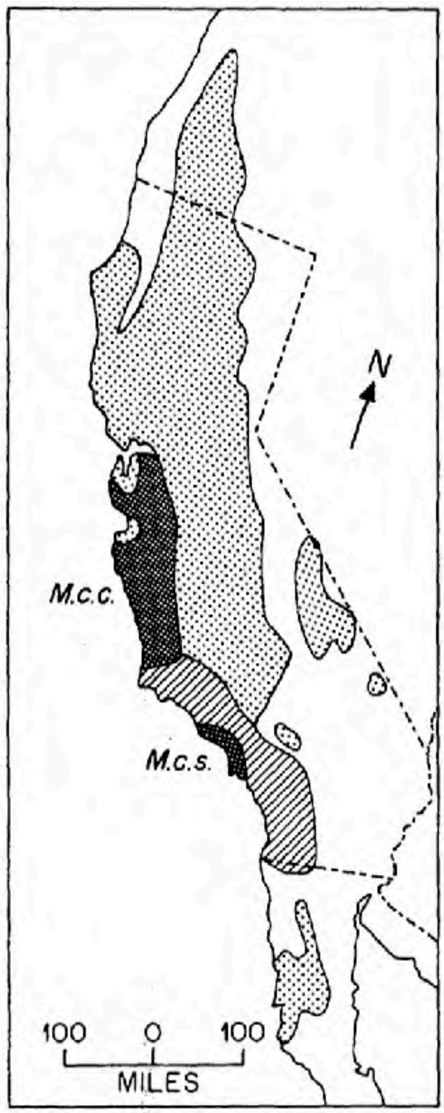


Fig. 1. Range of *Microtus californicus* (patterned areas), including ranges of subspecies *californicus (Mcc)* and *stephensi (Mcs)* (darker areas) and *sanctidiegi* (lined). Adapted from Hall & Kelson (1959).

When a citizen naturalist snapped pictures of a Great Blue Heron at Malibu Lagoon eating a meadow vole in June of this year, others and I made the logical assumption that it would turn out to be a south coast meadow vole, based on the habitat. Although it is not possible to determine the subspecies with absolute certainly without a specimen, which adequate pre-project trapping at Malibu Lagoon would have yielded, once the presence of a meadow vole in that habitat was known, the sensitive subspecies was the only logical conclusion. State Parks has since confirmed that the meadow vole present at Malibu Lagoon was indeed the sensitive subspecies *stephensi*. It sent specimens to the National History Museum of Los Angeles County that were apparently killed in the construction process and reports "relocating" 50 of them. Indeed, even former Director Ruth Coleman refers to their presence in her objection to the revocation hearing.

When the south coast meadow vole photos came to light, I contacted Dr. Jonna Engel of your staff, whom I know and to whom I have provided expert assistance (at her request) in the past, so that effective mitigation measures could be devised and implemented. Our correspondence is reproduced here in chronological order.

From: Travis Longcore <longcore@urbanwildlands.org>
To: Engel, Jonna@Coastal
Sent: June 19, 2012 10:24 AM
Cc: Ainsworth, John@Coastal
Subject: south coast marsh vole

Hi Jonna,

Malibu Lagoon has a population of south coast marsh vole, which was recently documented by photographic evidence and confirmed by experts. It is a California species of special concern.

The EIR provided no mitigation measures to protect this species during construction, nor did the CDP.

It will be lost if construction continues as planned.

Can someone please do something so that yet another extirpation of a sensitive species is not the result of this project. We would never let a developer get away with continuing construction if a special status species was found during construction. This is a State species of concern and the State is doing the project, you'd think someone would do something.

Travis

From: Jonna@Coastal Engel <Jonna.Engel@coastal.ca.gov>
To: Travis Longcore <longcore@urbanwildlands.org>
Sent: June 19, 2012 12:37 PM
RE: south coast marsh vole

Hi Travis,

Who is the expert that identified the vole as a south coast marsh vole? I just had a long conversation with Paul Collins – I used to work with him at the SBMNH. He told me that it is impossible to identify south coast marsh voles from photographs – that in order to identify this species you must collect them, dissect them and do cranial morphology.

However, I am concerned that there may be sensitive mammal species at Malibu Lagoon and that is why we have special condition 1:

1. Initiate a salvage and relocation program prior to any excavation/maintenance activities to move sensitive species by hand to safe locations elsewhere along the project reach or (2) as appropriate, implement a resource avoidance program with sufficient buffer areas to ensure adverse impacts to such resources are avoided. The applicant shall also immediately notify the Executive Director of the presence of such species and which of the above actions are being taken. If the presence of any such sensitive species requires review by the United States Fish and Wildlife Service and/or the California Department of Fish and Game, then no development activities shall be allowed or continue until any such review and authorizations to proceed are received, subject to the approval of the Executive Director.

I am looking into this right now.

Jonna

p.s. I heard you on NPR – great spot!

From: Travis Longcore <longcore@urbanwildlands.org>
To: Jonna@Coastal Engel <Jonna.Engel@coastal.ca.gov>
Sent: June 19, 2012 12:53 PM
Re: south coast marsh vole

Hi Jonna,

You can tell it is a marsh vole, which Paul has confirmed to Roy van de Hoek (sp?), and south coast is the likely one. In the absence of conclusive knowledge that it is not, prudence dictates assuming that it is. It was collected and named by von Bloeker in 1932 and the distribution is LA, Orange, and Ventura counties. Once you know it is *M. californicus, stephensii* is the logical conclusion. Type locality is Mugu, doesn't seem possible that it would be anything else.

You can't exactly relocate marsh voles and expect them to be ok, and presence of this species should trigger consultation with DFG. Please let me know what the specific mitigation measures that will be for this species.

I'd also like to discuss my other concerns with this project, which I sent previously.

Travis

Here is the draft watch list account from DFG. Apparently they are downgrading to watch list, but it is currently SSC. See here: http://www.dfg.ca.gov/wildlife/nongame/ssc/docs/mammal/species/47-WatchListAccunts.pdf

South coast marsh vole, *Microtus californicus stephensi*

Philip W. Brylski

The south coast marsh vole occurs in a narrow band of wetland communities and associated grasslands in the immediate coastal zone from southern Ventura County to northern Orange County. According to Hall (1981), *M. c. stephensi* occurs from the type locality at Point Mugu, Ventura County, south to Sunset Beach, Orange County. Museum records for intervening localities are known for Ballona Wetlands and adjacent Playa del Rey, Los Angeles County. Vole populations that occur south of Sunset Beach, such as in the tidal marshes of Anaheim Bay near Newport Beach, are referable to the more widespread *M. c. sanctidiegi*. Coastal development from Sunset Beach north to Pacific Palisades, Los Angeles County, has resulted in the loss or degradation of the once extensive tidal marshes, leaving a series of fragmented and isolated habitat patches. Within this zone, suitable habitat remains at the Seal Beach Naval Weapons Center north of Sunset Beach, and at Ballona wetlands. Populations of the south coast marsh vole still occur in these areas, although no data are available on their status. Much of the coastal habitat from Pacific Palisades west and north to Point Mugu is afforded some protection from State parkland and the regulatory restrictions of the Malibu Coastal Plan and the Significant Ecological Areas identified under the Plan. Although no data are available on the status of the species, the south coast marsh vole is included on the Watch List rather than as a Special Concern taxon. Bleich (in review) also acknowledged the likely impact of coastal development on the south coast marsh vole, but considered the data to be insufficient to assign a risk of extinction to the species. Bleich (in review) also recommended that because the distribution of *M. c. stephensi* is surrounded by *M. c. sanctidiegi*, which in turn is surrounded by *c. californicus*, follow-up taxonomic or experimental work should, at a minimum, include all three forms.

From: Jonna@Coastal Engel <Jonna.Engel@coastal.ca.gov>
To: Travis Longcore <longcore@urbanwildlands.org>
Sent: June 19, 2012 1:13 PM
RE: south coast marsh vole

Hi Travis,

That is not what Paul told me. I had a long conversation with him. He told me that Malibu Lagoon is in the range of the California vole and that it could be a California vole. In addition Paul told me that genetic work has been done on these voles that supports the two subspecies actually being one species and that the agencies have not caught up with the science.

I have talked with Mark Abramson this morning to confirm some things. CEQA required small mammal surveys – small mammal surveys were done/trapping was done. There are no protocol level surveys for the 3 sensitive rodent species. The pre-construction surveys were done. There are several biological consultants on site now surveying all areas just prior to any work. Any animals that are in the path of the construction are being moved to appropriate locations.

Special Condition 1 requires consultation with DFG & USFWS – Mark is in consult with them. Please contact Mark to discuss.

Malibu Lagoon is a seasonal lagoon/estuary - has a history of being closed/open. The restoration was designed without involving the lagoon opening. I have had a long conversation with David Jacobs. I am sorry but I really do not have time to discuss this with you, I have many deadlines that I have to address. We obviously have a difference of opinion. I approved the lagoon restoration – you may have read my memo.

Jonna

From: Travis Longcore <longcore@urbanwildlands.org>
To: Jonna@Coastal Engel <Jonna.Engel@coastal.ca.gov>
Sent: June 19, 2012 1:35 PM
Re: south coast marsh vole

Jonna--

So we give them a pass because their small mammal trapping was not sufficient to locate the species that were present?

It is the obligation of the proponents to provide proof that it is not *stephensi*. It is the likely subspecies, especially given the habitat.

As I'm sure you know, relocating wildlife in this manner essentially lets people feel better about not killing them directly, but in fact results in their eventual death. This is a typical developer approach -- we'll just "move" the wildlife. But then they die. I'm very disappointed that the State has adopted such an approach as if it were valid. It would have been more justifiable if they had collected the herps and mammals for specimens for the museums. At least be honest that these native animals are being killed.

We do have a difference of opinion. I've read you memo and disagree with many of your conclusions. I guess all that I can do now is write a post mortem on this project for an environmental management journal to document how groupthink in the agencies surrounding these "restoration" projects has led to the ongoing erosion of California coastal biodiversity.

Regards,
Travis

From: Jonna@Coastal Engel <Jonna.Engel@coastal.ca.gov>
To: Travis Longcore <longcore@urbanwildlands.org>
Sent: June 19, 2012 1:42 PM
RE: south coast marsh vole

Please do not email me any more.

Jonna D. Engel, Ph.D.
Ecologist
California Coastal Commission
89 S. California Street, Suite 200
Ventura, CA 93001
(805) 585-1821

The facts here speak for themselves. State Parks submitted information to the Commission that was demonstrably inaccurate in that it did not disclose the presence of a California Species of Special Concern. They certainly intended to submit the material, and the failure for it being inaccurate is theirs alone. State Parks may also have missed other sensitive mammalian species because of the inadequate trapping effort undertaken (e.g., southern marsh shrew, *Sorex ornatus salicornicus*, which is not readily captured with the Sherman traps presumably used in their 3-day survey for small mammals in September 2005) (Natural Resources Assessment 2005).

Had State Parks submitted accurate information about biological resources, the Commission almost certainly would have imposed different conditions on the project. Dr. Engel asserts that a salvage and relocation program that was part of the project conditions would be adequate to cover south coast meadow vole (Condition 1.B). It is not, however, a generally accepted mitigation measure to relocate native wildlife. As a member of the Environmental Review Board for Los Angeles County I have had to tell developers any number of times that simply "moving" the wildlife out of their development site was not a mitigation because wherever they might be trying to move animals to would already be occupied. Relocation should only be undertaken as a last resort and then must be properly planned. This is because male California meadow voles maintain territories and are aggressive to interlopers, which is especially true during breeding (Ostfeld 1985a, Ostfeld 1985b). Female voles are aggressive toward unfamiliar females (Ostfeld 1986). This makes relocation a wholly inappropriate mitigation measure. Any recipient site for relocated individuals would have to already be unoccupied by the species (to avoid intraspecific interactions), and the density of the relocated individuals could not exceed the capacity of the habitat to support them. Former Director Coleman acknowledges this in her letter, when she writes:

> "A lengthy project delay would cause animals that have been re-located to adjacent habitat to adjust their population density downward to utilize what is now available to them… The South Coast marsh vole, a California Species of Concern [*sic*], is one species that would be affected by being slower to re-establish itself in the project area."

So State Parks knows and understands that relocation of sensitive species means that they will "adjust their population density downward" (a euphemism for "die") when released into a new location. They make no provision, it appears, for the intraspecific aggression that would occur when attempting to do such a translocation and which would speed up the process of "adjusting their population density downward."

If State Parks properly disclosed presence of the meadow vole, a reasoned discussion about mitigation measures could have occurred. At a minimum, the public was denied the ability to comment on the impacts to this species and the proposed mitigation measures by State Parks' submittal of inaccurate and incomplete information.

The Commission should revoke the permit for this project and require immediate restoration of the project site as it would do with any other developer. In formulating such a restoration plan, the State should consider the issues raised in my letter attached, which points out that as long as Malibu Creek is constrained under the Pacific Coast Highway bridge, it cannot move across the floodplain and scour out and create lagoon space as it did historically, nor are tidal flows sufficient to maintain the type of extensive marsh system that was created by the original project in the 1980s or the proposed new configuration. Restoration of the site should be done with awareness of these facts, and seek to restore the types of wet meadow, brackish marsh, and seasonally inundated habitats that would have historically been found with these hydrological conditions, rather than an idealized and inappropriate channel configuration that attempts to replicate a fully tidal salt marsh where there never was one.

Sincerely,

Travis Longcore, Ph.D.

Literature Cited

Gill, A. E. 1984. Partial reproductive isolation of subspecies of the California vole, *Microtus californicus*. Genetica **52-53**:105–117.

Natural Resources Assessment. 2005. Small mammal trapping survey: Malibu Lagoon Enhancement and Restoration Plan, Malibu, California. Natural Resources Assessment, Inc., Riverside, California.

Ostfeld, R. S. 1985a. Experimental analysis of aggression and spacing behavior in California voles. Canadian Journal of Zoology **63**:2277–2282.

Ostfeld, R. S. 1985b. Limiting resources and territoriality in microtine rodents. American Naturalist **126**:1–15.

Ostfeld, R. S. 1986. Territoriality and mating system of California voles. Journal of Animal Ecology **55**:691–706.

von Bloeker, J. C., Jr. 1932. Three new mammals from salt marsh areas in southern California. Proceedings of the Biological Society of Washington **45**:131–138.

Impending Malibu Lagoon "Restoration" Destructive and Misguided

Travis Longcore, Ph.D.
(310) 247-9719
longcore@usc.edu

The following assessment of the impending Malibu Lagoon project is provided in hopes that any officials with the power to do so will halt this destructive and futile project and instead develop plans that incorporate current understanding of the processes that govern coastal estuaries in a manner that will protect rather than harm native species that depend on these unique seasonally tidal wetland ecosystems.

Popular media accounts of the impending start of the Malibu Lagoon Restoration and Enhancement Project characterize it as "emotional activists vs. scientists" — implying that all of those opposed to the project are simply ill-informed and that all scientists agree that the project is both necessary and prudent. As a scientist, I disagree. The rationale upon which the project is based does not withstand scrutiny and reveals a fundamental misunderstanding of the historical and current forces that created and maintain the Malibu Lagoon. I have worked on the general topic of the historical characteristics of southern California rivers and estuaries for the past seven years and been part of research teams investigating the historical nature of these systems and the natural processes that form them.

The fundamental complaint about Malibu Lagoon from project proponents is that it lacks water circulation and as a consequence has low dissolved oxygen and sedimentation with nutrient rich waters and soils from the Malibu Creek watershed. Their solution is to scrape out the sediments in the west lagoon and reconfigure the Lagoon to increase tidal flow. But to expect this to change the nature of the lagoon is a mistake: Malibu Lagoon was historically and will in the future tend to be brackish and prone to sedimentation and low dissolved oxygen. In fact, it is likely that in its pre-European settlement state it would not have met current water quality standards. To understand this, consider the historical extent and nature of the area where Malibu Creek meets the ocean.

Early maps of Malibu Lagoon, such as the Coast Survey Sheet T-1432 from 1877, do not show a tidal marsh with a singe main channel and branching arms. The reproductions I have seen of this map are not high resolution, but it appears that Malibu Creek swings out to the west and then forms a lagoon behind a barrier beach. There seems to be a marsh, not an extensive one, but rather one with maybe two channels branching off at 90 degree angles from a main channel. The same configuration is evident in the 1903 topographic map, except the stream has moved to the east. Subsequent maps show these features in various degrees of being filled in by development. Nowhere have I ever seen evidence of the characteristic dendritic network of a fully tidal salt marsh. Which brings us to a second point. Malibu is, and has been for at least hundreds of years, a closing estuary.

The flow from Malibu creek is insufficient to keep the longshore wave action from forming a berm during the summer. Malibu Creek is closed completely from the ocean about half of the year. This might change from year to year, but the pattern of annual closure is a natural part of this system. The tendency for a system such as this will be that back channels will slowly sediment in until they are cleared out by a big flood or a shift in the creek's route. That is, the lagoon of recent history (last 200 years) was not a set of channels created and maintained by tidal flow, but rather was the remnants of former creek routes scoured out during extreme flooding events and subsequent movement of the creek mouth. The creek would change routes across the whole floodplain of the Civic Center area, with a tendency for the mouth to migrate to the east with the longshore flow of wave action over time, until constrained by the bluffs at the eastern edge.

So long as it is not jettied open to the ocean, we should not expect the Malibu Lagoon to behave like a fully tidal salt marsh, even if it is graded to look like one. Yet, this is the apparent goal of the project proponents. They want to change the water quality by introducing more tidal flushing. They expect this to reduce sedimentation and increase dissolved oxygen. Although not an explicit goal of the project, many proponents have argued the dredging will reduce bacteria in the lagoon. Some have also suggested that this will help deal with invasive plant species by making the water saltier. But all of this reflects an attempt to make the lagoon into something it historically was not and that is not supported by the physical processes currently in place. The back channels of the lagoon will have low dissolved oxygen. As long as there are nutrient rich sediments coming down Malibu Creek the lagoon will tend to silt up and accumulate these sediments. During the summer the lagoon will close and there will be a heavy freshwater influence. And because conditions very similar to these occurred in California estuaries for hundreds and thousands of years, native species are adapted to them. Tidewater gobies — the endangered fish that breeds very successfully in the lagoon — has an enormously wide range of tolerance for dissolved oxygen and loves the submerged aquatic vegetation that some see as an indicator of poor water quality. It is doing very well in the lagoon as is.

The field of coastal wetland restoration in California is dominated by people who believe that the only good wetland is one that is fully tidal year round. So we see various "restorations" that consist of constructing jetties to artificially open to the ocean naturally closing estuaries— Bolsa Chica Wetlands, Batiquitos Lagoon, San Dieguito Lagoon, Talbert Marsh, and the current plans for the Ballona Wetlands. Each time this is done, some of the native biodiversity and natural variation in California estuaries is lost (see our detailed report on this topic). And because these "restorations" are attempts to create a condition not supported by the physical processes of the place, they also involve incredible expense and energy to dredge these artificial openings to keep them from silting in.

Which brings us to a final point about the Malibu Lagoon project. The planning documents for the project indicate that if the tidal flows in the newly constructed channels falls below those at some reference marshes, then heavy equipment could be used (again) to make sure that the Lagoon behaves like the designers intended by dredging the channels. The reference marshes listed to trigger such actions are all systems that are artificially jettied open (Talbert Marsh, Batiquitos Lagoon, and Carpinteria Marsh) and are dredged to stop the natural process of mouth closure. Using these as references for Malibu Lagoon reflects that managers both misunderstand the natural dynamics of Malibu Lagoon — the flow in channels of a naturally closing estuary should not be expected to match that of one that is jettied open — and ensure that they will be fighting those natural processes for years to come to get it to behave more like what they want it to be, instead of what it is. Furthermore, tidewater gobies are no longer found at these "reference" marshes, and could never be reintroduced because of management for a permanently open channel mouth.

If the restoration proceeds, and I sincerely hope it does not, I predict that it will fare little better than the previous attempt ending in 1983 on the metrics that motivate project proponents. In the short run it may increase dissolved oxygen and increase salinity (which would actually be a degradation of habitat for the original native flora and fauna adapted to a brackish marsh). In the long run, sedimentation will continue, nutrient levels will be high, water will stagnate in the channels, and it will be full of bacteria. We should only be upset about these things if they are caused by humans (e.g., polluted runoff and increased erosion from the watershed). These problems have to be dealt with before the water gets to the lagoon. Even if they are cleaned up entirely the lagoon might not meet arbitrary water quality standards, but then again it probably would not have met those standards 200 years ago either!

Certainly things could be done to promote native biodiversity at Malibu Lagoon. They should not, however, be premised around a misunderstanding of what the natural processes will support. And they should recognize that the native biodiversity of Malibu Lagoon is that associated with either the main channel or brackish marshes and stagnant water, not a fully tidal saltmarsh. The area where the parking lot was removed could be graded down and added to the wetland area, but there is no need or long-term benefit to reconfiguring the channels into some idealized saltmarsh form as if it were San Francisco Bay. Even as rare as saltmarsh habitat is in California, the brackish and freshwater wetlands of the naturally closing systems (which historically were the majority) are even more rare and we should resist the temptation to homogenize them.

To claim that Malibu Lagoon is "dying" is to fail to grasp what kind of wetland it is. It is not dying. It is simply approaching equilibrium with the physical processes of the watershed and some people have decided that they would prefer a different type of wetland. The lagoon supports significant biodiversity, just not the same species as one would find in a permanently tidal salt marsh. We should no more expect a seasonal creek to be river or a meadow to be forest than to expect a lagoon that is closed to the ocean for half of the year to have the same water characteristics as those that are flushed year round by the ocean. The current "restoration" will be destructive to the natural community that has developed since the first dredging project (including the extremely successful reintroduction of endangered tidewater gobies), have obvious impacts to the waterfowl that use the lagoon for nesting and foraging, and provide little benefit that could not instead be achieved in a far less destructive manner.

About the Author*

Dr. Travis Longcore is Science Director of The Urban Wildlands Group and President of the Board of Directors of the Los Angeles Audubon Society. He is also Associate Research Professor at the University of Southern California Spatial Sciences Institute and Associate Adjunct Professor at the UCLA Institute of the Environment and Sustainability where he has taught, among other courses, Bioresource Management, Environmental Impact Analysis, and the Environmental Science Practicum. He was graduated *summa cum laude* from the University of Delaware with an Honors B.A. in Geography, holds

an M.A. and a Ph.D. in Geography from UCLA, and is professionally certified as a Senior Ecologist by the Ecological Society of America. He has worked with research teams to describe the historical ecology of rivers and estuaries along the southern California coast, including the San Gabriel River, Ballona Creek, Santa Clara River, Ventura River, and Ventura County coastal wetlands. These reports can be downloaded at: http://www.urbanwildlands.org/longcore.html in the "Historical Ecology" section.

*Affiliations are provided for identification purposes only and do not indicate endorsement by any organization, institution, or individual.

MASER
CONSULTING P.A.
Consulting, Municipal & Environmental Engineers
Planners ▪ Surveyors ▪ Landscape Architects

331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Tel: 732.383.1950 ▪Fax: 732.383.1984

October 12, 2010

Ms. Bonnie Neely, Chair & Mrs. Mary Shallenberger, Vice Chair
& Mr. Jack Ainsworth, Deputy Executive Director
California Coastal Commission
45 Fremont Street
Suite 2000San Francisco, CA 94105-2219 (also sent to Ventura Office via Amber Tysor)

RE: Comments regarding the CCC Staff Report
Malibu Lagoon Restoration and Enhancement Plan
Application No. 4-07-098
Agenda Item W6a

Dear Ms. Neely, Ms. Shallenberger, Mr. Ainsworth and Commissioners:

I write on behalf of the Wetlands Defense Fund regarding Item W6a on the Commission's agenda for October 13, 2010, described as implementation of a Wetland Habitat Restoration and Enhancement Plan for Malibu Lagoon. The Staff Report recommends approval of a Coastal Development Permit for the above referenced project proposed by the California Department of Parks and Recreation for a portion of Malibu Lagoon State Beach in the City of Malibu. This Plan is the result of many years of effort on the part of agencies, scientists, a Technical Advisory Committee, and dedicated, well-intentioned individuals. The Plan, however, is based upon a number of conceptual and factual errors that have seriously impacted the planning process, resulting in a proposal that should not receive a Coastal Development Permit without further consideration and redesign.

We have reviewed the *Malibu Lagoon Feasibility Study Final Alternatives Analysis* (Moffatt & Nichol 2005); the *Malibu Lagoon Restoration & Enhancement Plan* (the Plan) (Moffatt & Nichol 2005); the EIR based on a modified version of the proposed Plan (Jones & Stokes 2006); the CCC Staff Report based on further modifications of the Plan (Tysor 2010); and various ancillary documents. The ongoing evolution of the Plan and planning process has resulted in an incomplete environmental review and has provided a challenge for those conducting an analysis of the proposed project due to its complexity and changes. Nonetheless, there are many apparent problems relevant to all versions of the Plan, which we herein identify and review, and for which we provide a series of alternate solutions presented as the "*Malibu Lagoon Conceptual Wetland Rejuvenation Plan*".

Due to the short time period provided for public review of the Staff Report, the analysis below was necessarily limited and provides a non-comprehensive list of problems with the applicant's Plan and associated environmental documents.

Professional experience

My professional background includes 25 years of experience in restoration ecology, including the enhancement, restoration, and creation of wetland and upland habitats, as well as various biological investigations in central and southern California. I also have over forty years of experience in conducting research on and evaluations of estuaries of the east and west coasts of the United States, which provides a valuable dual-coast perspective on the structure, function, and management of these ecosystems. During my 26-year employment at UC Santa Barbara ending in 2004, I served as the Executive Director of the Museum of Systematics and Ecology, the Director of Carpinteria Salt Marsh, and the associate Director of the UCSB Natural Reserve System. During the past ten years I have served on relevant committees including the Southern California Wetlands Recovery Project Science Advisory Committee; the Ballona Wetlands Restoration Project Science Advisory Committee; and the Ormond Beach Wetland Restoration Project Design Review Group. Hence I have long-term experience in managing facilities and reserves including estuaries, and participating in agency-sponsored restoration efforts, which provide relevant experience to review the resources of and conservation proposals for Malibu Lagoon State Beach. My curriculum vitae is attached.

Context and functioning of Malibu Lagoon

Estuaries along the coast of central and southern California are unique unto themselves because of their individual geographic location, watershed characteristics, and type of geomorphic opening to the ocean. Depending on the combination of factors, their biogeochemical processes, hydrological and hydraulic processes, and resulting biological diversity can be quite different among the historic and extant examples. For example, plants and animals reach their geographic limits at different latitudes along the coast, occurring in different salinities characteristic of different estuarine environments. It is possible, however to group estuaries into several broad categories based on a combination of these characteristics.

Malibu Lagoon is typical in many ways of the "river and stream mouth" category characteristic of portions of the West Coast of the United States, which includes estuaries that are connected seasonally to the open ocean. When their mouths are closed to the ocean, and hence the estuaries do not receive tidal inundation during this significant amount of time each year, the estuaries are characterized by a slightly brackish (oligosaline) rather than a brackish (mixosaline) or hypersaline environment (more saline than sea water). Other examples of this category include San Antonia Creek Estuary in Santa Barbara County and the Ventura River Estuary in Ventura County. These examples collectively have some biotic components that are different because of their geographic location, but they also have many biotic components in common because of their similar biogeochemistry and mouth geomorphology. This difference can be accentuated by the augmentation of freshwater from urban runoff and sanitary effluent, but the fundamental differences remain similar.
The categorization of estuaries is alluded to in the Plan, EIR, and Staff Report, but is mischaracterized when the flora of the river and creek mouth types is stated as being depauperate as compared to other southern California estuaries of different categories. This comparison is not appropriate as long as a set of caveats is not included regarding the lumping of dissimilar estuarine environments resulting in an artificial and potentially unsustainable combination of features. Nonetheless, Ambrose and Orme (2000) state, "*Despite its small size, irregular*

topography, and unusual vegetation patterns, the restored salt Marsh is used extensively by wildlife, particularly by fish and birds."

Fundamental mischaracterization can have profound implications during the development of restoration and enhancement plans, as noted below. The functional capacity of Malibu Lagoon as a river and stream mouth category of wetlands, rather than being enhanced by the subject Plan, would be significantly diminished and degraded. There is no effective way presented in the Staff Report to mitigate or replace the temporal and likely the long-term damage to the existing important ecosystem functions currently characteristic of the Malibu Lagoon wetlands.

Floristic diversity and vegetative cover

The Plan, EIR, and Staff Report all conclude Malibu Lagoon has low native floristic diversity and a high proportion of weeds. Strictly speaking this may appear to be true to the untrained eye, but comparing what parts of the estuarine ecosystem at Malibu to other similar estuaries rather than all estuaries? Broad areas of the estuarine, transitional, and upland habitats at Malibu are covered by a high preponderance of native species, with either scattered individual non-native species or patches of non-native species forming a significantly lesser amount. This is quite a different phenomenon than what one is lead to believe by reading the Plan, EIR, and Staff Report. The great majority of the floristic biomass is represented by native species and a reasonable representation of the flora for this type of estuary does not make it as degraded or floristically depauperate as portrayed by proponents of the proposed restoration and enhancement plan.

This is not to say that the Malibu Lagoon has a complete component of plant species that would likely be represented at other estuaries within the river and stream mouth type. For example, Salt Marsh Baccharis (*Baccharis douglasii*), Western Golderod (*Euthamia occidentalis*), Alkali Ryegrass *(Leymus triticoides*), Yerba Mansa (*Anemopsis californica*), American Three-square Bulrush (*Schoenoplectus americanus*), and Three-square Bulrush (*Schoenoplectus pungens*) are representative species one might expect to find a Malibu Lagoon but are not reported as part of the current flora (Yerba Mansa was planted recently in the bioswales). Most of the plant species also are not included in the plant palette of the proposed restoration and enhancement plan.

Submerged aquatic vegetation

Submerged aquatic vegetation (SAV) includes rooted flowering plants that generally do not emerge from the water column of a particular habitat. When the species that compose this vegetation occur in estuarine or marine environments they are also known as seagrasses. In the estuarine environment of central and southern California, for example, examples include Horned Pondweed (*Zannchellia palustris*), Sago Pondweed (*Stuckenia pectinata*, previously *Potamogeton pectinatus*), Wigeon-grass (*Ruppia maritima*), and Spiral Wigeon-grass (*Ruppia cirrhosa*). SAV contributes important ecosystem functions in the estuarine environment including habitat for invertebrates and fish, food for waterfowl such as dabbling ducks and geese, and healthy water quality attributes including oxygenating the water column and assimilating nutrients.

The status of SAV is currently of national interest (e.g., Thayer et al. 1997, Forseca et al. 1998) not only because of its high and multifaceted ecosystem structural and functional importance, but also because of its widespread decline in the estuarine environment due to a multitude of impacts or combinations of impacts such as sedimentation, nutrient enrichment, competition from algae, and mechanical impacts from boating, fishing, and personal watercraft. Loss of SAV is most certainly a significant impact to aquatic invertebrate populations, nursery habitat for fish, and food chain support for waterfowl. In many estuaries, loss of SAV also can have a profound impact on economically important fisheries. Because of the importance of SAV and significant losses in many coastal regions, some states have passed SAV rules (Thayer et al. 1997) that regulate the activities in or adjacent to mapped SAV habitat or potential habitat.

As with many estuaries in the same category, Malibu Lagoon supports a population of Spiral Wigeon-grass, also known as Spiral Ditch-grass (*Ruppia cirrhosa*). This species is generally confined to interior saline ponds and lakes and along the coast to estuaries that are only slightly brackish. In relationship to the Plan the Commission is considering, Spiral Wigeon-grass apparently has been misidentified as Wigeon-grass (*Ruppia maritima*) in the various reports regarding the flora of Malibu Lagoon, including those associated with the proposed project. Wigeon-grass is apparently more typical of saline and seasonally hypersaline estuaries or coastal ponds such as at Devereux Slough, Campus Lagoon, and Carpinteria Salt Marsh in Santa Barbara County. It is not generally correlated with Tidewater Goby due to the plant's preference for environments at least seasonally too salty for this protected fish. We have been informed that the presence of this important aquatic plant species has been dismissed by some of the project proponents, apparently linking it mistakenly to the presence of dense macrophytic algae, which is often a sign of poor water quality. The presence of dense stands of Wigeon-grass in the estuarine environment in the region, however, represents a high quality habitat for many estuarine animal species and several levels of food-chain support function. The western marsh complex at Malibu Lagoon provides a strong example of such as high quality submerged aquatic habitat.

Salinity measurements taken in the channels of the western marsh at Malibu Lagoon, which were dominated by Spiral Wigeon-grass on October 5, 2010, ranged from 3 – 7 ‰, whereas the near-shore open ocean approximated 33 ‰, a typical ocean reading for the region. In the western and eastern portions of the proposed project, extensive stands develop by late summer and fall and are important habitat for aquatic invertebrates and fish, including the federal and state listed Tidewater Goby (*Eucyclogobius newberryi*). I have found a strong correlation between the occurrence of Spiral Wigeon-grass and Tidewater Goby - i.e., if Spiral Wigeon-grass is present there almost certainly will be a population of Tidewater Goby. This finding was also reported in the Recovery Plan for the Tidewater Goby (USFWS 2005). Dagit and Swift (2005) reported Channel C of the west marsh complex was habitat for foraging and protection of Tidewater Goby based upon their fish survey in June 2005. They extrapolated the same was true for Channels A & B. The Tidewater Goby is an important indicator of the health of the unique low salinity brackish water conditions characteristic of many California estuaries (Capelli 1997).

On a recent visit in October 2010 to the Malibu Lagoon, we observed an abundance of aquatic invertebrates, important food for Tidewater Goby, within the stands of Spiral Wigeon-grass in the west marsh. Project review letters provided by NMFS (McInnis 2006) and USFWS (Noda

2008) both acknowledge the importance of SAV for fish habitat, and the USFWS (Noda 2008) includes SAV within the parameters of critical habitat for the Tidewater Goby. Numerous waterfowl including Mallard and Brant also were observed eating the submerged plants. It is quite clear the SAV beds at Malibu Lagoon are an important resource.

The applicant's Plan with its proposal to remake the western complex, will result in long-term negative impacts to SAV, and as a consequence there is an unexamined risk of long-term negative impacts to the Tidewater Goby, as well. The aim of the Plan is not to restore the existing habitat but to create a new wetland and lagoon ecosystem complex. Even if successful, this new complex is not likely to support the same cover and quality of SAV that currently exists at Malibu Lagoon. No mention of SAV cover and functions are mentioned in the goals of the project and no SAV species are listed in the proposed plant palette.

Unfortunately, SAV was not identified or discussed as a plant community, vegetation, or resource of importance within any document that is related to the proposed restoration and enhancement plan including the Plan, EIR, or Staff Report. In fact the plant community is either absent from the documents and their associated analyses or, as in the case of the EIR and Staff Report and included letters of support, is only mentioned in passing within the benthic community and macrophytic algae discussions where it is considered evidence of poor water quality. This lack of treatment of a critical component of the Malibu Lagoon environmentally sensitive habitat area (ESHA) designation brings into question the entire planning and review process and likely warrants a new environmental review because the potential impacts to the SAV beds and their critical ecosystem functions were not addressed. Also, no mitigation measures are identified or analyzed in the Staff Report to compensate for temporal and long-term impacts to SAV.

<u>Current status of wetlands and aquatic habitats at Malibu Lagoon</u>

Contrary to the many allegations and characterizations in the Staff Report and EIR that describe the widespread degradation of wetland and aquatic resources and ecosystem functions at Malibu Lagoon, evidence provided herein suggests a different portrayal of the situation for significant portions of the ecosystem. The habitats are not as degraded, the biota is not as depauperate, and the functions are not as low as suggested in the Plan, EIR, and Staff Report for the proposed restoration and enhancement plan. In fact, for some resources such as the protected Tidewater Goby and its associated SAV beds, the quality of the ecosystem is high and of regional significance. The channels, channel banks, and adjacent marsh habitat each exhibit high capacity for numerous estuarine functions. Hence impacts to various resources and functions from implementation of the proposed Plan, in whichever form it has been presented in the various documents over the past five years, have either not been adequately addressed or not addressed at all. Additionally, the purported benefits of the Plan – to improve a wetland area that is in fact not severely degraded – are therefore mischaracterized and overstated.

<u>Malibu Lagoon Conceptual Wetland Rejuvenation Plan</u>

The Staff Report regarding the applicant's Plan fails to consider feasible and viable alternatives to the proposed project that would be less environmentally damaging to the existing conditions of the western wetland complex. There are numerous environmental enhancements that would rejuvenate the existing conditions including habitat and water quality without the grading of approximately 88,000 cubic yards of wetland and upland habitats and soils.

Rather than completely remove all estuarine organisms, salvage some plants, recontour the entire area of the previous wetland restoration site, and implement a new plan that does not take into account the importance of the existing conditions, on behalf of the Wetlands Defense Fund, we propose a different approach, which would result in a rejuvenation of existing conditions (see attached Plan). This Rejuvenation alternative also will improve habitat and water quality as well as or better than the proposed project before the Commission. The following actions that characterize this alternative plan are flexible in combination and phasing, and are arranged according to the major habitat and access areas illustrated on the attached *Malibu Lagoon Conceptual Wetland Rejuvenation Plan*:

- Channel (& SAV) Habitat
  - Issues: Existing conditions in the western and eastern wetland complexes include some accumulation of sediment and organic material during the past 20 years since the previous restoration project, which has contributed to a localized decrease in circulation. Emergent vegetation has grown over the banks due to the seasonal ponding.

  - Solutions: Conduct a phased, channel by channel enhancement project by, for example, hydroraking (see attached photograph) or other rejuvenation activities that preserve the channels, remove accumulated sediment to a desirable depth, and reduce emergent vegetation growing over banks into the channels. Use of a hydrorake is standard practice in shallow water environments such as lakes and lagoons where sediment and organic material has accumulated, impacting habitats and water quality. Also, old channels could be reconnected and new connections could be added to existing channels, as feasible, to increase circulation. For example, one alternative is to connect the two portions of the north channel (north and south of Pacific Coast Highway). Also, a new alternative channel through portions of the proposed expanded marsh would likely increase circulation in the northern portion of the expanded marsh. None of these actions require widespread alteration of the habitats and long-term disruption of the estuarine ecosystem.

    Investigate further and find solutions for the extensive water quality problems within the Main Channel that are not anticipated to improve substantially as a result of the proposed project. The Main Channel, for example, can exhibit signs of serious pollution problems (e.g., dense algae), which are not simultaneously exhibited by the channels of the western marsh complex under existing conditions. See attached aerial photograph, which shows evidence of extensive macrophytic algae in the Main Channel but not in the western marsh complex. Financing would perhaps be better spent on improving water quality in the Main Channel.

  - Timing: Because of the environmental sensitivity of channel habitat for Tidewater Goby and SAV species (*Ruppia cirrhosa*), the hydroraking would likely take place in the late fall or winter and before the estuary mouth breaches. This would allow the hydrorake to float, removing sediment after the SAV vegetation is mostly senescent, and following seining of the Tidewater Goby, as permitted and after the primary breeding season of this endangered species is over. Each of the three channels would be hydroraked in successive years, minimizing disturbance and potential impacts to the total SAV resource (only 1/3 of the channel habitat would be impacted annual over three years). Monitoring of the process would occur annually to evaluate the recovery of SAV and the response by the Tidewater Goby population.

- Emergent Marsh Habitat
  - Issues: Invasive species occur in various portions of the emergent wetland, as identified in the proposed project review documents. Fill soils characterize underutilized sites once characterized by estuarine wetland habitats.

  - Solutions: Invasive species would be removed manually to eliminate the need for herbicides. Invasive species growing along channel banks would be removed in part by the hydrorake. In some locations where habitat elevations may be too high, such as the center of some wetland islands, manual removal of some small quantities of the vegetation may improve the conditions for native wetland species. Invasive species were removed successfully from a small wetland island (locally known as Lori's Island) adjacent to the Main Channel in the western wetland complex but not shown on the attached plan. Approximately two-acres of new emergent wetland would be created south of the parking and amphitheater area. This expansion of existing wetland is similar to the creation of new habitat proposed in the applicant's plan. Additional channel habitat and public access are also part of the proposed approach. Existing vegetation emergent from channels, including bulrushes, tules, and cattails, would be enhanced with additional species and cover in some areas, increasing the likelihood of nutrient assimilation by these hydrophytes.

- Wetland Transitional Habitat
  - Issues: Invasive species occur in various portions of the wetland transition habitat, as identified in the proposed project review documents. The native flora of the transition zone is missing a number of species that would be expected to grow at the site.

  - Solutions: Invasive species would be removed manually to eliminate the need for herbicides. Invasive species growing along channel banks adjacent to transition zones would be removed in part by the hydrorake. Native species typical of the transition habitats of this type of estuary but absent from Malibu Lagoon (e.g. Salt Marsh Baccharis, Western Goldenrod, Alkali Ryegrass, and Yerba Mansa) would be planted to help enhance the existing conditions. Western Goldenrod is a showy, native species important for insect nectaring (e.g., butterflies and bees) so the conditions for terrestrial insects and food chain support, as well as site aesthetics, also would be enhanced. The enhanced transitional habitats may also be appropriate areas to experiment with the translocation of sensitive plant species such as the endangered Ventura Marsh Milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*) and Salt Marsh Bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*), and a species of special concern, Salt Marsh Daisy (*Lasthenia glabrata* ssp. *coulteri)*.

- Dune Habitat
  - Issues: No dune vegetation typical of the region of exists at the mouth of Malibu Lagoon. Fill soils underlying some of the Aeolian sands may hinder efforts to restore the dune habitat. The proposed sites are dominated by non-native weedy species.

  - Solutions: Certain portions of the underutilized habitats at the western side of the mouth adjacent to the western wetland complex provide an opportunity to recreate dune and dune scrub habitat, a resource that was once common along the Malibu coast. Recreated dune habitat might eventually support sensitive species such as Globose Dune Beetles, Ciliate Dune Beetles, and even the Silvery Legless Lizard, which might still be present in some of the sandy soils in the vicinity of Malibu Lagoon. Native perennial grasses such as Alkali Ryegrass and Saltgrass may also help establish and stabilize the dune habitat in proximity to wetland habitat. The eastern margin of the mouth of the estuary also could be evaluated for possible creation of dune habitat.

    The proposed applicant's Plan would establish dune-like habitat (coastal strand) along the inland side of the newly created wetland. The resulting habitat of the applicant's Plan is likely to be difficult to maintain because it would be isolated from coastal processes necessary to create and maintain dunes and coastal strand complexes. Unlike the proposed Plan, our alternative for dune habitat is closer to the shorelines where sand dunes are created by wind and coastal processes.

- Upland Habitat

  - Issues: The previously planted upland habitats have not been maintained sufficiently resulting in an accumulation of dead material (gradually being removed now) and spread of non-native shrubs and herbaceous species.

  - Solutions: Upland habitat in the vicinity of the western wetland complex would be enhanced by removal of dead material and gradual replacement of existing shrubs with lower-growing native shrubs such as Coast Goldenbush (*Isocoma menziesii*), which has been included in the landscaping for the new parking and observation area. Plants such as Coast Goldenbush also will add more color to the landscape and will attract more insects such as butterflies than currently inhabit the State Beach.

    The applicant's plan for upland habitats has many similar components. The desire to have less fire fuel in the landscape is accomplished by converting portions of the native scrub that is overgrown to low-growing and less fuel producing species.

Other candidate species include, for example, low-growing native shrubs such as Sawtooth Goldenbush (*Hazardia squarrosa*), California Daisy (*Lessingia confertiflora*), Sea-cliff Buckwheat (*Eriogonum parvifolium*), and native perennial grasses such as Purple Needlegrass (*Nassella pulchra*) and California Barley (*Hordeum brachyantherum* var. *californicum*). Existing and additional taller-growing shrubs appropriate for the site could be maintained in clusters at appropriate areas. The reduction and fragmentation of the fuel load will accompany an aesthetic and higher functioning upland portion of the coastal habitat complex.

- <u>Public Access</u>
  - o <u>Issues</u>: Public access and interpretation/education programs are a vitally important component of coastal ecosystems that interface with communities, parks, and corridors. Both the applicant's Plan and the conceptual plan presented herein focus on the public component. The existing conditions include trails and bridges providing two access paths to the beach. One of these trails runs through the lagoon with wooden bridges and provides an experience within the ecosystem that is unparalleled. Previous attempts to provide interpretive and education experiences are now minimized due to the removal of posted materials.

  - o <u>Solutions:</u> To retain the existing two-path system and still expand wetlands into fill areas, we propose a boardwalk system through the proposed created wetland, with two new bridges over a proposed channel, to connect the parking area to the existing trails and the beach. We support the need for interpretation and observation areas, but these features should face the habitats and resources relevant to the theme, such as at Carpinteria Salt Marsh Nature Park, rather than be placed along the proposed wall away from the wetland and upland habitats and wildlife. While a newer, more attractive border fence may be in order between private and public property, an opaque wall is neither visually pleasing nor supportive of wildlife connectivity principles.

    The present access system has been in place for two decades and presence of passive human activities in proximity to resident and migratory wildlife is the stable existing conditions. The plan proposed herein maintains and enhances this condition for this important access and interpretation feature without increasing impacts to habitats and wildlife.

- <u>Malibu Lagoon Management and Maintenance Manual</u>
  The current conditions at the State Beach suffer in part from a lack of appropriate management of the natural resources, possibly exacerbated by diminished funding of State Parks. We propose the preparation of a Management and Maintenance Manual that would provide guidance to park staff and volunteers, focusing on the natural resources and public access programs. Created environments in urbanized regions generally require ongoing management activities and are rarely self-

sustaining systems. Eradication or control of non-native species, recovery of rare and endangered species, response to catastrophic events, monitoring water quality, maintenance of public facilities including trails and bridges, creation and management of a docent program, and removal of trash, are among the activities that would be included.

The overall Rejuvenation alternative described herein would retain the non-controversial elements of the applicant's project. These would include, for example:

- An enriched coastal-scrub palette, with many low-stature plant species, to attract more terrestrial insects, to open views, and to reduce fuel load.
- An enhanced transition wetland habitat with an increased plant palette of appropriate species.
- Improved circulation, including tidal circulation when the estuary mouth is open.
- The coastal access route along the western and southern margins of the site.
- An enhanced interpretation program.
- A temporary native plant nursery, to be managed by professional staff, to provide appropriate healthy plants for the project.

Recommendations

We recommend the Commission proceed as follows:

- Deny the applicant's request for a CDP to implement the proposed Malibu Lagoon Restoration and Enhancement Plan, based on an inadequate alternatives analysis, environmental review, and impact assessment.
- Request the applicant to redesign the proposed project considering the alternatives included herein.
- Request a new alternatives analysis including the redesigned project.
- Request a new environmental review of the redesigned plan including resources and information contained herein.
- Address and find solutions for the water quality problems within the main channel, an ongoing and serious issue, which will not be substantially improved by implementation of the proposed project.

Thank you for your consideration of our proposals and recommendations. Please contact us if you have any questions or would like to discuss the material contained in this letter.

Very Truly Yours,

MASER CONSULTING P.A.

Wayne R. Ferren Jr.
Project Manager
Ecological Services

CC: Marcia Hanscom, Wetlands Defense Fund; James Birkeland, Esq.

Attachments

Document: 10001114A/Letters/FerrenLetterReport10-12-10/

Cited Documents

Ambrose, R. F. and A. R. Orme. 2000. Lower Malibu Creek and Lagoon Resource Enhancement and Management. Final Report to the California State Coastal Conservancy. University of California, Los Angeles.

Capelli, M. 1997. Tidewater Goby (*Eucyclogobius newberryi*) Management in California Estuaries. Proceedings, California and the World Ocean Conference, March 24-27, 1997, San Diego, CA.

Dagit, R. and C. Swift. 2005. Malibu Lagoon Fish Survey 20 June 2005. Prepared for California Coastal Conservancy. RCDSMM and Entrix, Inc.

Fonseca, M. S., W. J. Kenworthy, and G. W. Thayer. 1998. *Guidelines for the Conservation and Restoration of Seagrasses in the United States and Adjacent Waters.* National Oceanic and Atmospheric Administration, National marine Fisheries Service, Coastal Ocean Program. Decision Analysis Series No 12.

Jones & Stokes. 2006. *Malibu Lagoon Restoration and Enhancement Plan Final EIR*. SCH # 2005101123. Prepared for the California State Department of Parks and Recreation, California State Coastal Conservancy, and Resource Conservation District of the Santa Monica Mountains. Prepared by Jones and Stokes in cooperation with Terry A. Haynes Associates and the above agencies. March 2006.

McInnis, R. R. 2006. Letter to Ms. Goode, District Environmental Coordinator, California Department of Parks and Recreation. From: United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. F/SWR4:WBC. March 6, 2006.

Moffatt & Nichol. 2005. *Malibu Lagoon Restoration & Enhancement Plan*. Prepared for California State Coastal Conservancy and California State Department of Parks and Recreation. Prepared by Moffatt & Nichol in association with Heal the Bay. M& N File: 5381. June 17, 2005.

Noda, D. K. 2008. Letter to A. O. Allen, Chief, United States Department of the Interior, Fish and Wildlife Service. Subject: Acknowledgment of request for Formal Consultation on the Proposed Malibu Lagoon Restoration and Enhancement Project, City of Malibu, Los Angeles County, California (1-8-08-F-4). December 20, 2007.

Thayer, G. W., M. S. Fonseca, and J. W. Kenworthy. 1997. *Atlantic Coastal Submerged Aquatic Vegetation: A Review of its Ecological Role, Anthropogenic Impacts, State Regulations, and Value to Coastal Fisheries*. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Atlantic State Marine Fisheries Commission. C. D. Stephan and T. E. Bigfords, eds.

Tysor, A. 2010. California Coastal Commission Item W6a Staff Report: Regular Calendar. Application 4—7-098, California Department of Parks and Recreation. Malibu Lagoon State Beach, City of Malibu, Los Angeles County.

U.S. Fish & Wildlife Service. 2005. *Recovery Plan for the Tidewater Goby* (*Eucylogobius newberryi*). Pacific Region, U.S. Fish & Wildlife Service, Portland, Oregon.

San Fernando Valley Audubon Society
Incorporated as California Audubon Society 1913
P.O. Box 7769 Van Nuys, CA 91409-7769

"For nature education and the conservation of wildlife"

October 11, 2010

California Coastal Commission
Attn: Amber Tysor
89 South California Street, Suite 200
Ventura, CA 93001-2801

Re: Malibu Lagoon Phase II

At our General Board of Directors meeting in September 2010 the San Fernando Valley Audubon Society made and passed a motion to oppose Phase 2 of the Malibu Lagoon restoration project. Our primary concern is over what is certain to be at least 1 year (probably more) of devastating impacts to the birdlife with no assurance that the hoped for end result will be any better than the current conditions. We are also concerned that, even if the project meets all desired results, whether or not any benefits are realized, one single storm event could wipe out all of this work, and require additional human disturbances, and expenses, to bring it back to the newly manufactured condition.

The Malibu Lagoon ecosystem is still recovering and adapting to the last major man-made hydrological fix. It is still attracting new bird life every year. The natural systems are finally beginning to overshadow the impacts of that human engineered attempt at creating a wetlands habitat. Do not erase what nature has recently accomplished, with another attempt to improve upon the faulty template that we created with a new unproven template for nature to start all over with.

We recommend the "No Project Alternative". The removal of non-natives, and additional re-vegetation with native plants is desirable and can continue without approval of this project. The removal of 13,700 cubic yards of material from the Lagoon may, or may not, improve the hydrology sufficiently to clean the water to an arbitrarily determined desirable level. The only thing for certain is that (if this project goes forward) the open sore that we created will be re-opened and remain open for a little longer.

Sincerely,

Kris Ohlenkamp
Conservation Chair

California Coastal Commission
Attn: Amber Tysor
89 South California Street, Suite 200
Ventura, CA 93001-2801

PASADENA AUDUBON SOCIETY
Founded April 1904
1750 N. Altadena Drive
Pasadena, CA 91107
WWW.PASADENAAUDUBON.ORG

Re: Malibu Lagoon Phase II

The mission of the Pasadena Audubon Society is "To bring the excitement of birds to our community through birding, education, and the conservation of bird habitats." While we support the idea of restoring Malibu Lagoon, we also have some concerns about the current plans to do so because they seem to overlook some remarkable educational opportunities that the Lagoon offers, and because they will devastate the Lagoon, with no guarantee that they will truly benefit the Lagoon. Therefore, we ask that the Commission delay this plan so that all parties and stakeholders can work together to find a less destructive and more educational solution.

Our first concern is educational. The destruction of the bridges removes a wonderful and unique opportunity for the community to observe and experience nature close up. Rather than removing them, why not redesign them so that they do not impede the flow of water, and why not provide educational signage so that the public can learn more about the ecology of Malibu Lagoon? Places like this, where people can get very close to nature without disturbing it, are rare, and that should be protected and enhanced, not removed.

Our second concern is that the current plans will kill many of the fauna that live here. While some of the birds can fly away, one must wonder where they will go. The other areas that can support these birds are already full. And what about the rarer birds like the Sora that my son and I saw (from one of the bridges!) there a couple of weeks ago? Where can they go? Isn't it just possible that there is a kinder and gentler way to improve the water flow of the Lagoon, one that does not require draining and bulldozing the Lagoon right at the height of nesting season? And if improving water quality is the goal, then shouldn't plans include improving the quality of the water that flows into the Lagoon? Without doing that, the water quality will not improve much, if at all.

We recognize the desire to improve the habitat at Malibu Lagoon, and we applaud the goals to improve water quality and the ecology of the area. We simply ask that the Commission delay these current plans so that a more ecologically friendly plan can be developed.

Thank you,
Laura Garrett
Conservation Chair
Pasadena Audubon Society

To bring the excitement of birds to our community through birding, education and the conservation of bird habitats.

ROBERT ROY VAN DE HOEK

CONSERVATION BIOLOGIST

October 13, 2010

The Honorable Bonnie Neely, Chair,
The Honorable Mary Shallenberger, Vice Chair
& Jack Ainsworth, Deputy Director
California Coastal Commission
c/o Amber Tysor, Ventura Office ~
sent via email and facsimile and also distributed by hand to Commissioners

re: Application #4-07-098, Malibu Lagoon proposed project, phase 2.

Dear Commission Chair Neely, Vice Chair Shallenberger, Commissioners, Mr. Ainsworth and Ms. Tysor:

I write on behalf of the Ballona Institute and Wetlands Defense Fund to express objections to the referenced item above. These objections are based on the best available science, particularly conservation biology, ecology, restoration ecology, and endangered species science. We disagree with staff, both in their recommendation, as well in the analysis, and apparently, staff did not have all of the relevant information available to make a better-informed decision, and that is where we begin with our comments.

During the last 12 years (1999-2010) of continuous and ongoing direct scientific observations at Malibu Lagoon, within the proposed project area, in all four seasons of the year, including very relevant recent observations in the last week, on October 5 and 11, 2010, just prior to the hearing date of October 13, I have observed that the water is healthy (see below) and there is abundant animal life and plant life that is native and natural as wildlife and wildflowers, with some of this life on the endangered species list of the United States and California, and some this life is extremely rare and sensitive and recognized both the U.S. and California as rapidly sliding toward extinction, but not yet on endangered species lists. I have not witnessed any evidence of water stagnation or low dissolved oxygen that would be harmful to animal life or plant life, in fact I wish to reiterate I characterize the water in the project area as healthy for plant life and animal life.

The most convincing evidence for the waters of Malibu Lagoon within the project area being healthy with an adequate amount of dissolved oxygen lies in the fact that I have always been able to observe in the last 12 years, an abundance of thriving submerged animal life and submerged plant life. The key factor to consider is that this thriving animal life is found attached and embedded in the submerged aquatic vegetation (SAV), particularly Spiral Wigeon Grass (*Ruppia cirrhosa*), and the animal life is also found in the submerged wetland soils, as infauna (buried) and as epifauna (soil surface). In conjunction with adequate dissolved oxygen in the water, there are the repeated observations over the last 12 years, that the water has excellent clarity (i.e. visually clear similar to filtered drinking water), except that there is animal life teeming in this clear water amongst the submerged aquatic vegetation (SAV). These combined facts, indicates beyond a doubt that there is adequate dissolved oxygen in the water for life, and that we cannot conclude that the water is stagnated. These observations have been made in the immediate vicinity of the pedestrian boardwalk-like bridges at Malibu Lagoon, as well as the backwater areas of the perimeter trail, and areas in between these places.

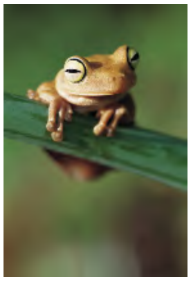
It is again very important to reiterate that the abundant aquatic animal life has been observed at all times of the year living submerged in the water, and can be verified by the abundance of specialized birds that feed on fish in the proposed project area, including herons, egrets, pelicans, terns, cormorants, and others, making them carnivores (piscivores) that see their prey through the clear water and the fish being found in the vegetation and in the open water swimming, with adequate oxygen.

One important feature to recognize about fish and the many animals without backbones that are also aquatic and submerged, is that they have gills that metabolize oxygen at the interface of the water and gills. The continuous presence of these animals with ability to breathe, or process oxygen via the gills, indicates an abundance of oxygen. The abundance of this dissolved oxygen supports the following animals without backbones, in several phyla, including Mollusca, Annelida, and Arthropoda. The vernacular names of some of these animals include: Dragonflies, Damselflies, and several snails. On October 6 and 11, 2010, I observed the larval exoskeleton fragments, by the hundreds on the stems of aquatic plants and emergent wetland plants, such as the California Tule. There can be no doubt, for example, that larval dragonflies, climbed up the stems of the aquatic reed-like vegetation, and then became adults on the stem, exposed in the air.

There is also an abundance of animals with backbones (vertebrates) and they include several species of fish, and add up to many thousands of individuals, further proof of adequate dissolved oxygen and water clarity (not stagnant). One of these fish is the Striped Mullet (*Mugil cephalus*), which adds oxygen to the water, as well as taking oxygen from the water with their gills. This unique fish jumps from the water into the air, and the splash, when gravity brings them back into the water, adds dissolved oxygen into the water column. Interestingly, this fish is crucial to the productivity of lagoon waters and estuaries (Michael Horn, 2009, pers. comm. Ichthyologist-fish biologist at California State University at Fullerton), another feature of healthy waters. Lastly, related to fish and oxygen and stagnation in Malibu Lagoon, a fish known as the Tidewater Goby (*Eucyclogobius newberryi*), which has declined elsewhere in coastal California, thrives in Malibu Lagoon, with thousands of individuals being found there, a clear indication of healthy habitat, with adequate dissolved oxygen in the water, and not stagnant from the perspective of the Tidewater Goby. Keep in mind that the Tidewater Goby, although recognized as endangered with extinction by the United States Fish & Wildlife Service (USFWS), continues to slide toward extinction (Peter Moyle, 2002, Inland Fishes of California, pages 430-434 specifically, and the entire book generally; Peter Moyle, September and October 2010, personal communication). Therefore, the increase of the Tidewater Goby within the proposed project area, shows us eloquently that Malibu Lagoon is a success story and the proposed project represents a risk that I cannot fathom as a scientist, unless politics and economics has entered into the equation of the decision to dewater and dredge Malibu Lagoon, where the Tidewater Goby is abundant and will be eliminated, with a very high risk of extirpation (local extinction) permanently, as significant portion of the life history of the Tidewater Goby depends on this portion of Malibu Lagoon.

Sincerely,

Robert "Roy" van de Hoek, Conservation Biologist
Wetlands Defense Fund & Ballona Institute
322 Culver Boulevard, Suite 317
Los Angeles (Playa del Rey), CA 90293



Wetlands Defense Fund

W6a

CLEAN

COASTAL LAW ENFORCEMENT ACTION NETWORK

Projects of the International Humanities Center

October 12, 2010

The Honorable Bonnie Neely, Chair,
The Honorable Mary Shallenberger, Vice Chair
& Jack Ainsworth, Deputy Director
California Coastal Commission
c/o Amber Tysor, Ventura Office ~
sent via email and facsimile and also distributed by hand to Commissioners

re: Application #4-07-098, Malibu Lagoon proposed project

Dear Commission Chair Neely, Vice Chair Shallenberger, Commissioners,
Mr. Ainsworth and Ms. Tysor:

I write on behalf of Wetlands Defense Fund and CLEAN (Coastal Law Enforcement Action Network) to express our strong objection to approval of the item referenced above. We disagree with staff, both in its recommendation, as well as in its analysis. It seems clear, however, that staff did not have the benefit of input from a full rage of wetland experts and habitat specialists, and we hope by providing additional, relevant information, there might be room for a re-examination of the Project. Wetlands Defense Fund and CLEAN are nonprofit initiatives with the specific purpose to protect and enhance California wetlands

322 Culver Blvd., #317, Playa del Rey, CA 90293 ~ (310) 821-9045

and coastal habitats. Our prior engagements have included efforts to protect streamside Environmentally Sensitive Habitat Area (ESHA) in Stokes Canyon, rare vernal pool wetlands at Isla Vista in Santa Barbara, and more generally, endangered and rare species of native flora and fauna, including the endangered Least Tern at its breeding grounds in Los Angeles. We have also provided funding to California State Parks for positive solar installations, as well as a habitat restoration of raptors at Montana de Oro State Park as a result of settlement of a coastal litigation effort to insure proper mitigation by a large utility firm. While we are often completely supportive of California State Parks and its efforts, on this Project we find ourselves necessarily objecting to their plans due to the proposed Project's negative impacts to a functioning coastal lagoon, rare and fragile by its very nature.

BACKGROUND

Malibu Lagoon, as it exists today, is of great ecological significance. The lagoon is a 31-acre shallow water embayment at the terminus of the Malibu Creek at Surfrider Beach, and it is one of the last remaining coastal wetlands within Santa Monica Bay. There is no dispute that the lagoon currently provides an important coastal wetland resource for both avian and aquatic species.[1]

Yet, without fully recognizing existing ecological values, the Project proposes to remake the western complex of Malibu Lagoon with grading, dredging, and fill totaling 88,7000 cubic yards. This heavy-handed approach would have unavoidable and significant environmental impacts on the lagoon. The entire Project would occur in ESHA, and the majority of dredge and fill would occur in wetlands. Despite this development's obvious inconsistencies with the Coastal Act, project proponents consistently underestimate the full scope of significant wetland, biological, and other impacts.

Moreover, the Project poses to undermine benefits from prior restoration efforts. In 1983, the California Department of Parks and Recreation ("DPR") initiated a

[1] Jones & Stokes, *Biolgoical Assessment/Essential Fish Habitat Assessment for the Malibu Lagoon Restoration Project*, Nov. 2007, at 1.

restoration of the lagoon (the "1983 Restoration"), which involved the 60,000 cubic yards of excavation to create three wetlands channels, restore approximately 7 acres of lagoon (the "western complex"), and create a series of boardwalks to allow for public access.[2] In 1996, the California Department of Transportation ("Caltrans") funded another restoration plan to mitigate for impacts incurred from the Pacific Coast Highway Bridge Replacement Project; and that restoration program included a Tidewater Goby habitat enhancement project and a revegetation program. Both of these prior restorations resulted in successful enhancement of habitat for birds, the Tidewater Goby, and other species, and in improvement to public access to the sea. The Project would significantly impact these prior advances.

PUBLIC PROCESS

Contrary to the assertions of project advocates, the process of public participation has been flawed in several significant respects. In fact, Wetlands Defense Fund and CLEAN were not aware that that Phase II of the project (as opposed to just the Phase I parking lot renovation) was going to proceed at all until the Commission posted an agenda item early this past summer.

The genesis of the plan before the Commission was conceived of and planned largely behind closed doors, away from those of us who were informed and interested stakeholders of the Malibu Creek Watershed Council's Malibu Lagoon Task Force. When members of the public first became aware than a "technical" committee was planning this project without the benefit of the informed public's input, objections were raised.

In fact, the Malibu Lagoon Task Force agreed on a set of recommendations for action, which included moving the parking lot, removing nonnative plants and replacing with more appropriate natives (never considered doing with bulldozers or poisonous herbicides) and, most importantly, acquiring more land in the Malibu Creek floodplain, the details of which were articulated in a speech by

[2] Coastal Development Permit No. P-79-5515

Suzanne Goode of California State Parks to the City of Malibu. Her speech is available for viewing at: http://www.youtube.com/watch?v=3LpzT1gPDhw By reference, we incorporate Suzanne Goode's comments in this letter and ask that those comments be considered part of the official record. In addition, please refer to the Ambros/Orme UCLA study which underscores these land acquisitions as priorities for cleaning the waters which flow to Malibu Surfrider Beach due to the acknowledged need to clean the upstream flows before they reach the lagoon. A fine example of the results of those priorities being paid attention to is the City of Malibu's acquisition of the site formerly known as the "Chili Cookoff site" and now recently dedicated as "Legacy Park," which does, indeed plan for capturing storm water flows and cleansing these waters before their arrival at Malibu Lagoon and Surfrider Beach.

After repeated objections to this "out of the blue" proposal from Heal the Bay's engineering contractor, as mentioned above, by numerous stakeholders, finally two people were allowed to attend one of these meetings at the office of Heal the Bay, but those two of us (which I was one) were not allowed to speak, only listen. Heal the Bay had received a $250,000 grant from the State Coastal Conservancy to conceive of this plan, yet only Heal the Bay staffers, some selected advisors ("technical" committee) and agency representatives from State Parks and Coastal Conservancy were present.

It became apparent at that meeting that the plans this process had hatched would not be good for the lagoon's ecosystem. When the engineering firm presented these plans to the public, there was such outcry that the rest of the planning for this project apparently went even deeper underground.

A scoping notice for an environmental review process was sent out, which CLEAN commented on, but after that we never heard anything further about an environmental impact report, although one was completed and approved of. It is interesting to note that the main comment-makers on the EIR are government agencies, and it is surprising that more of the NGO stakeholders did not comment. Perhaps they were also not notified. We have inquired of adjacent residents and Malibu stakeholders like the Malibu Township Council and others, all of whom report they were not notified of the environmental review process.

In addition, no federal Environmental Impact Statement (EIS) was completed, even though Malibu Lagoon is designated as "Critical Habitat" for the endangered Tidewater Goby, the federally-endangered California Least Tern uses Malibu Lagoon (including the western arms where we have viewed this feeding behavior for years) for post-breeding dispersal foraging for adults and their young, and other species listed on the endangered species list, like the Southern Steelhead and Western Snowy Plover either use the lagoon or adjacent habitat, being potentially impacted by this drastic, highly industrial project which would alter the lagoon and its natural processes significantly.

We are grateful to have the opportunity to now raise our concerns before the Commission.

NEW INFORMATION

Malibu Lagoon has a terrific diversity of habitat values, many of which have never been acknowledged or for which Project impacts have never been examined. This year alone numerous additional bird species were documented by expert ornithologists, including the presence of more than 300 Black Skimmers (listed as rare and of "national conservation concern" by National Audubon Society), which began nesting behavior, and several Belding's Savannah Sparrows, a species on the State of California Endangered Species list. More than 200 bird species have been documented as having using Malibu Lagoon for some part of their life cycle, and numerous new species were sighted and documented this year, making the 2005 bird report which the EIR relied on outdated and in need of an update, especially due to the rare and endangered bird sightings this summer.

There are, thus, questions as to whether the National Environmental Policy Act (NEPA) was followed, whether the Endangered Species Act was properly complied with and whether the Migratory Bird Treaty Act would be violated if this project proceeds. And now, given the lack of comment on this process (due to staffing deficiencies) from the California Department of Fish & Game, California state laws protecting rare and endangered species have not been sufficiently analyzed.

Los Angeles Superior Court Judge James Chalfant has ruled that the Coastal Commission must consult with the California Department of Fish & Game in order to comply with CEQA, and the "sorry we can't comment letter due to staffing deficiencies" letter does not adequately address the very concerns DFG raised in their scoping comments for the EIR, which were not adequately addressed in the EIR either.

INCONSISTENT INFORMATION

Fish Kills?: While Project proponents and the Commission's staff report assert that this Project will fix a problem of low dissolved oxygen and "big fish kills," the science reports relied on for this assertion conclude the opposite. For instance: in an excerpt from Page 207 of the UCLA Ambrose & Orme study:

> "Probably the most important water quality limitation in Malibu Lagoon is the dissolved oxygen (DO) concentration. Species such as topsmelt have been shown to be intolerant of low DO but a low DO level of >4 mg/L is generally recognized as necessary for most species. Some species, such as the negative indicator *Polydora nuchalis*, tolerate low DO, but the positive indicator species apparently cannot. There is no extensive monitoring record of DO in Malibu Lagoon. However, Ambrose, et al (1995) report periods of low DO in association with algal mats in the Lagoon. Heavy algal cover and the consequent low DO have been associated with fish kills in some systems. However, ***we have no well-documented records of extensive fish kills in Malibu Lagoon.*** During the Ambrose, et al, (1995) fish in traps on the bottom of the Lagoon were killed during low DO episodes, but ***widespread fish kills were not observed."***

Still Water for Tidewater Goby: It is disturbing that the Coastal Commission might consider approving a project that would be so destructive of critical habitat for the Tidewater Goby and functioning habitat without reviewing in its entirety the record as it now stands. According to the US Fish & Wildlife Service Critical Habitat report, the Tidewater Goby requires STILL WATER, not moving water, as this Project plans for.

NO TIME GOOD FOR CONSTRUCTION DUE TO ENDANGERED SPECIES

The US Fish & Wildlife Service and National Marine Fisheries Service determined that there would be times when such a massive construction project would not be good for the endangered species which depend on Malibu Lagoon for food, breeding and other habitat needs.

The attached chart, found in the Coastal Commission's Ventura office files, demonstrates that there is really no time at all when this Project should be allowed to proceed, yet the most important breeding time for the Tidewater Goby, a fish on the United States Endangered Species List, was selected for draining and dredging of the lagoon, and impacts (including injury and death) to this species which is on the brink of extinction will be assured.

WILL THIS PROJECT MEET THE GOALS OF THE PROJECT PLANNING BY MALIBU LAGOON TASK FORCE?

On page 552 of Malibu Creek Watershed UCLA study by Rich Ambrose and Anthony Orme, which was the consensus document which arose from the stakeholder processes planning for improvements to Malibu Lagoon, the agreed on priority for restoration at Malibu Lagoon was determined to be to acquire more land in the Malibu Creek floodplain.

"the acquisition of potentially restorable land should be the highest priority for restoration and the first step in restoring the Malibu Lagoon ecosystem"

"The principle of giving highest priority to the acquisition of land before it is developed has been adopted by the Scientific Advisory Panel for the Southern California Wetlands Recovery Project, a consortium of state and federal agencies concerned with wetland restoration in southern California."

Finally, we ask that you reject this project proposal and send the restoration idea back to California State Parks so that they can study and consider the genuine restoration alternative proposal put forth by expert wetland restoration scientist Wayne Ferren – a proposal that is based on the actual existing conditions of Malibu Lagoon and its important ESHA (Environmentally Sensitive Habitat Area) qualities which are required to be preserved and protected by law.

We remain hopeful that a project can move forward soon that will honor the ecological functions of Malibu Lagoon that apparently have been poorly misunderstood by many of those advocating for their destruction.

With best regards ~ and for the wetlands ~

Marcia Hanscom /s/

Marcia Hanscom
Director
Wetlands Defense Fund

&

Managing Director
CLEAN (Coastal Law Enforcement Action Network)

Wetlands Defense Fund and CLEAN are
Projects of the International Humanities Center
Pacific Palisades, California

DECLARATION FROM ROBERT VAN DE HOEK IN SUPPORT OF INJUNCTION FOR WETLANDS DEFENSE FUND

I, Robert van de Hoek, declare as follows:

1. I currently serve as the science director of the Wetlands Defense Fund, a petitioner in this case, and Co-Director of the Ballona Institute, both entities located in Los Angeles, California. I am currently employed as an environmental educator and supervising naturalist with the Los Angeles County Department of Parks and Recreation and have held this position since 1996. My career has been largely dedicated to wetlands ecology and wildlife protection, fish and avian biology, and environmental education. I have conducted field investigations of the ecosystem at Malibu Lagoon on a regular basis for the last 33 years, most intensely for the last twelve years.

2. I received my double Baccalaureate University Degrees in Environmental Biology and Geography from California State University at Northridge (CSUN) (with a minor in Geological Sciences) in 1986. In addition, I received an Environmental Horticultural Science Certificate from El Camino College in 2005. I completed post-graduate studies at the University of Nevada at Reno, in the Department of Hydrology, Wildlife, and Range Studies; and I completed post-graduate studies at CSUN in Geography with a focus on Geomorphology, Biogeography, Conservation, and Ecological Restoration. While a student at CSUN, I was employed as an Ichthyologist (Fish Biology) Technician.

3. Previously I was employed as a professional wildlife biologist and archaeologist from 1985 to 1993 with the U.S. Forest Service and U.S. Bureau of Land Management. From 1993 to 1995, I was employed as an Environmental Educator with the state of California at the Resource Conservation District of the Santa Monica Mountains. In addition, I have been a

science instructor from 1988 to 1991 at three California community colleges (Lassen College, Bakersfield College, and Cerro Coso College) where I taught courses in Natural History and Biology of Birds. And for one year in 1986, I was a science teacher in the Los Angeles Unified School District.

4. My other professional licenses and credentials include: (1) a license as a recreation professional from the Board of Certification of the California Parks and Recreation Society, with my specialty in environmental education (2007 to present); (2) rated qualified as a professional botanist with the U.S. Department of Interior (1992); and (3) rated qualified as a wildlife biologist and botanist by the California Department of Fish and Game (1995).

5. The Ballona Institute, where I serve as Co-director, consistently receives high recognition for its wetlands restoration and education work. In 2009 the Institute was honored as part of World Wetlands Day by the U.S Fish and Wildlife Service (F&WS) , and the Institute has received numerous commendations from the City of Los Angeles, County of Los Angeles, the late State Senator Jenny Oropeza, State Assembly Member Ted Lieu, and U.S. Congresswoman Jane Harman.

6. I am the author of more than 71 scientific reports, as well as an author in a book, *California's Wild Gardens,* published by the California Native Plant Society, and my work has been cited in many peer-reviewed scientific journals.

7. I have read the California Coastal Commission's staff reports and most of the documents referenced in support for the Malibu Lagoon Wetland Habitat Restoration and Enhancement Plan relied on as the basis for the Commission's approval of a Coastal Development Permit for the project (the "Project").

///

8. I base this declaration on my personal knowledge, field investigations, expertise, as well as knowledge of the relevant scientific literature and various permit applications for this project.

HARM TO ENTIRE ECOSYSTEM

9. Malibu Lagoon State Park, as it exists today, has a functioning ecosystem that supports an impressive array of biodiversity. The lagoon provides shelter (homes) or foraging areas for more than 200 species of birds, 12 species of fish, an estimated 1,200 species of insects and other invertebrate animals, 154 species of plants with a predominance of the plant cover approximately 80% by native plants, one species of amphibian, four species of reptiles, and a conservative estimate of 12 species of mammals. Several of these species are endangered or threatened, like the Tidewater goby, discussed below.

10. The lagoon ecosystem – especially in the western portion of Malibu Lagoon that is slated by the Project for intensive dredging and fill – is unique in the area. This lagoon marsh area has ideal conditions for submerged aquatic vegetation (SAV), including many floating grass-like plants such as Wigeon Grass, which in turn support a vibrant and abundant number of small invertebrate fauna of aquatic insects (dragonflies, damselflies, water beetles, etc.), small aquatic crustacean animals (copepods, shrimp-like amphipoda, ostracoda, etc.), and mollusks (snails). These species in turn support other organisms, higher on the food-chain, like fish and birds. The lagoon also contains healthy brackish marsh and freshwater marsh vegetation habitat that emerges high above the water, such as 17-23 foot reed beds composed of Cattail vegetation and Tule Sedge-like vegetation, which avian ecologists and plant ecologists refer to as "emergent vegetation." Together, the emergent vegetation and SAV provide the home, nutrients, and support systems for all of the other wildlife that currently exist in the lagoon.

11. The Project would result in the loss of a rare and unique coastal complex of wetlands, estuary, marsh, and adjacent coastal uplands – all of which have been designated by the California Coastal Commission and the City of Malibu as ESHA (Environmentally Sensitive Habitat Area) in the Malibu Local Coastal Program (LCP.) The Project proposes the large-scale grading and fill of 88,700 cubic yards of living soil – along with the SAV and emergent vegetation – that support the entire ecosystem. There is no dispute that plant life and smaller organisms would be destroyed, but the Project would consequently also irreparably harm the species that depend on this environment, such as the Tidewater goby.

12. In addition, because the Malibu Lagoon ecosystem is relatively unique in the area, the Project would have long-lasting and irreparable impacts to the biodiversity not only at Malibu Lagoon, but to the adjoining ecosystem of Malibu Creek, and the coastal areas up and down the shore, north and south, east and west, of Malibu Lagoon. Many species in these adjoining areas, especially birds, use Malibu Lagoon as a foraging and feeding area. As well, migrating birds traveling to or from their breeding grounds stop at Malibu Lagoon, which offers essential feeding and resting areas during these migrations.

13. The Commission's staff report is deeply flawed with regard to recognizing, much less analyzing, the habitat value of the existent lagoon. Nowhere, for example, does the staff report adequately consider how permanently altering this unique ecology, with SAV and emergent vegetation, would undermine the biological support system for, and cause irreparable harm to, sensitive and endangered species in the area.

14. Moreover, the Project proposes to create deep channels in the western complex of Malibu Lagoon, ultimately creating a new, different habitat then what exists today. These deep

///

channels will not support the same quality of SAV and emergent vegetation, both of which are ideally suited to and thrive in a shallow-water environment.

HARM TO ENDANGERED SPECIES

15. The Tidewater Goby (*Eucyclogobius newberryi*) is a member of the Goby Family of fishes (Gobiidae). The U.S. Fish and Wildlife Service placed the Tidewater goby on the U.S. Endangered Species List in 1994 and developed a Recovery Plan for the species in 2005. Significantly, the population of Tidewater goby in Malibu Lagoon has increased from an initial population in 1992 of 95 individuals, to an estimated 5000+ individuals in 2005, which is an approximate 5000% increase, providing compelling evidence that the existing environment and habitat is excellent for this endangered species. (Sean Manion 1992 report; Rosi Dagit & Camm Swift 2005 report.)

16. Tidewater gobies thrive in submerged aquatic vegetation and are especially well-adapted to stressful aquatic environments of low dissolved oxygen, often categorized inappropriately as having "poor water quality." This begs the question as to what "poor water quality" is from the standpoint of the Tidewater goby and other species that excel and populate profusely in such waters, such as dragonflies, damselflies, aquatic copepod invertebrates which live by swimming in the plankton, and numerous additional species (circa 100 species). None of these species were adequately studied in the Commission's staff reports or supporting documents even though these invertebrates are prey items to (food for) the Tidewater goby.

17. The Project's plan to re-engineer the lagoon and remove SAV, the supporting system for the Tidewater goby, in which much of the food for the Tidewater goby lives, will cause

///

///

irreparable harm to the species. The habitat would be permanently altered to the detriment of this highly endangered fish, creating the risk of local extirpation.[1]

18. The Western Snowy Plover (*Charadrius alexandrinus*) is also listed as federally threatened by the F&WS. This species belongs to a group of birds called shorebirds, which scientists place in the Order Charadriiformes. Malibu Lagoon provides the food for both the adult Snowy Plover and young Snowy Plover. Since the beginning in 2009, a protective fence is constructed each spring to facilitate and protect nesting Snowy Plovers on the beach closest to Malibu Lagoon. The fence provides a temporary protective enclosure, with the current fence appearing in the last few weeks. This is the second spring breeding season that a fence has been placed at Malibu Lagoon beach with an expectation that nesting of the Snowy Plover will occur in the next few months. And, in fact, nesting is expected to be in full swing at the beginning of the proposed June 1 construction start of the Project.

19. Less than a week ago, on 26 March 2011, between 11:00 am and 1:00 pm, I observed and photographed 18 Snowy Plover within the fenced area of the beach, not more than 30 meters from the boundary of the construction site. On 26 March 2011, I also observed light pairing of the 18 individuals into 9 pairs. This species of shorebird nests colonially and is a very social bird generally within its species during the balance of the year. Throughout California, where nesting occurs for the Snowy Plover, there is always water near at hand since this species feeds primarily on aquatic insects found at the water's edge and in very shallow waters. There is every reason to expect the Snowy Plover to nest at Malibu Lagoon Beach again this spring and summer.

[1] Also significant, the Malibu Lagoon population of Tidewater gobies is of a unique genetic makeup, transplanted originally from the Ventura River Lagoon. An aggressive competitor, namely the Shimofuri Goby, is threatening to outcompete this sister-population in the Ventura River area (Moyle, 2002; pers. comm.. 1 October 2010), making protection of the Malibu Lagoon populations of Tidewater gobies of regional significance.

20. The Project's construction in close proximity to Snowy Plover's nesting areas will impact the behavior of the species to such an extent that there is a high risk of nest failure and high risk of mortality to embryos of female Snowy Plovers. The high decibel noise of the construction bulldozers and the diesel fumes will also have a high risk of contributing to fledgling mortality and nesting failure. Additionally, the Project includes the building of a "sand-bag dam-like wall" across the beach immediately adjacent to the project site. This wall will prevent the movement of flightless young plovers from feeding at the Malibu Lagoon shores. The water being pumped out of the lagoon will result in a loss of aquatic invertebrates for the Snowy Plover, causing irreparable harm to this imperiled species. The risk of local extirpation from Malibu Lagoon of this new colony of nesting species and local extinction in Los Angeles County is consequently also heightened by the proposed project. There is no mitigation proposed by the Project for these impacts to the Snowy Plover.

21. The <u>California Least Tern</u> (*Sterna antillarum browni*) is listed by the F&WS as a federally endangered species. This bird species currently does not breed at Malibu Lagoon, but is likely to nest there in the future. This likelihood is because the current sand bars in the lagoon, largely void of plant vegetation, are ideal for enticing the California Least Tern to nest at Malibu Lagoon.

22. The California Least Tern currently nests each summer, approximately 23 miles to the south at Venice Beach opposite Ballona Lagoon Marine Preserve. The California Least Tern also nests only a few tens of miles to the north in Ventura County, where there is an annually successful nesting colony. These two colonies of nesting terns, once their young can fly, travel as family units to nearby lagoons such as Malibu Lagoon, so the young birds can test their wings, be fed additional food sources by the parents, learn to hunt on their own as

juveniles, and escape danger and predation at their natal sites. Thus, Malibu Lagoon also serves as a crucial post-breeding dispersal, pre-migration location, where they can accumulate calories of body fat for the long journey to spend the winter in Central America. The abundant fish in Malibu Lagoon provide the parents with the opportunity to catch lots of food items to feed the still-begging offspring, which have not yet mastered hunting of fish by hovering in the air over water, then plummeting like a spear with wings tucked in as they dive into the water to catch a fish. The importance of Malibu Lagoon for these post-breeding dispersal needs was recognized in the Environmental Impact Report for the Project, as well as the Biological Opinion issued by the F&WS, which is why the mitigation measures set forth in both of these approval documents did not allow for construction to occur in the months of July or August. The Commission staff reports, however, change the Project's construction schedule to June-October, which includes these important nesting months and therefore will cause significant impacts to these species.

23. The Project would cause irreparable harm to the California Least Tern because there will be fewer numbers of fish for the next approximately 15 years, due to the alteration of the habitat and destruction of the macro-invertebrate community, which is at the base of the food chain. Generally, the recovery of such systems takes significant time (approximately 12 to 18 years) and often some parts of the system never fully recover. Due to the construction noise and project movement activities, there is a high risk of California Least Tern abandonment of this area for post-breeding dispersal in future years, caused by stress-induced behavioral disruption. I have observed this type of stress-induced behavioral disruption with other bird species. There is no mitigation proposed by the Project for these impacts to the California Least Tern.

HARM TO OTHER BREEDING WATER AND SONG BIRDS

24. Two species of rails nest and breed at Malibu Lagoon in the reed beds of emergent native vegetation: Sora and Virginia Rail. Both of these birds are secretive and avoid detection as nesting birds even to expert birders, naturalists, biologists, and ecologists.

25. On 26 March, 2011, between 9:00 am and 11:00 am, I was able to observe the vocalized call notes of the Sora and Virginia Rail, a clear indication not only of the presence of these birds, but that nesting may be underway already. These two birds will require additional surveys later in spring and into summer, during the time that the proposed project would destroy the nesting habitat of the "reed bed" emergent vegetation and SAV, such that both the protective nesting habitat where nests and young hide from predators and the food that these two water birds prey upon will be eliminated.

26. Irreparable harm from the Project would result to these birds for decades, possibly in perpetuity, due to this proposed and planned project. Because of the major alteration in the drainage and circulation to the marsh, there is a risk of change in higher salinity patterns, which would not support the tule reeds, cattails which in turn eliminates habitat for the Sora, Virginia Rail, Red-winged Blackbird and Marsh Wren, which depend on this emergent vegetation habitat. The risk of extirpation (local extinction) of the Sora and Virginia Rail, along with the sub-aquatic vegetation, is very high. The proposed project would destroy a healthy and vibrant aquatic ecosystem that these birds depend on, which currently is functioning with a high ecological and environmental integrity and sustainability of both plant life and animal life with all the ecosystem processes of a natural brackish marsh and freshwater marsh with a unique limnology for part of the year in summer when breeding, reproduction, and future generations of life begin at the lagoon.

ALTERNATIVES TO THE PROJECT

27. Improving habitat and water quality in Malibu Lagoon does not require man-made engineering with massive grading and dredging in a sensitive wetlands. Genuine restoration alternatives could be implemented that both respect the existing environment and achieve the Project goals. A video demonstrating examples of genuine restoration efforts that might be implemented was played during the Coastal Commission's final hearing on the Project. This video was produced by Marshall Thompson and me. It contains scenes both within Malibu Lagoon and from areas outside the lagoon to demonstrate the negative impacts of bulldozers. The video also contains scenes from successful community-engaged restoration efforts implemented last year (and ongoing) at the Ballona Wetlands Grand Canal Lagoon in the City of Los Angeles (*Sierra Club, et al. v. California Coastal Commission*, Case No. 50024 (2002), where a similar high-impact dredging proposal was deemed by the San Francisco Superior Court to be illegal due to there being less damaging feasible alternatives. This video is attached as Exhibit A.

FAILURE TO MITIGATE HARMS

28. Because the Staff Report and supporting documents never recognize or analyze the full value of the wetlands in the western complex, there is no attempt to mitigate for the ecology of the existing wetlands. Thus, no mitigation is proposed for long-term impacts to wetlands – which the Staff Report does not identify or analyze in the first instance.

29. For those biological values that are recognized, the Project's mitigation measures are notably scarce. No mitigation compensates for the fact that the Project would not just significantly disrupt, but would completely destroy the currently functioning wetlands that exist in Malibu Lagoon. As but one example, proposed mitigation attempts to capture and rescue

individual Tidewater gobies before draining the western complex of Malibu Lagoon are both unlikely to be effective and, moreover, of little consequence if there is no long-term habitat for the gobies to return to if the proposed project is completed.

PUBLIC OPPOSITION AND PUBLIC PARTICIPATION

30. Based on information and belief, the vast majority of people I have spoken to who recreate in the Malibu Lagoon enjoy and value the existing habitat and oppose the proposed re-engineering and dredging. The high degree of public opposition to the Project is well captured in an article by actress Pamela Anderson, titled "The Ends vs. The Means," Malibu Magazine, Feb-March 2011, pp. 40 - 44. A copy of this article is included as Exhibit B.

31. Additionally, the public was not afforded adequate opportunity to participate in the Project's comment period during the administrative process before the Commission. The Commission's September 29, 2010 staff report entailed extensive new information, including citations to numerous studies, as well as significant project changes. This staff report was released less than two weeks before the final hearing on October 13, and did not provide enough time for public review.

I declare under penalty of perjury the foregoing is true and correct. Executed on this 30th day of March, 2011 at Los Angeles, California.

Robert van de Hoek

Robert van de Hoek
Conservation Biologist, Wetlands Scientist
Wetlands Defense Fund & Ballona Institute
322 Culver Boulevard, Suite 317
Los Angeles (Playa del Rey), CA 90293

DECLARATION FROM WAYNE R. FERREN JR. IN SUPPORT OF INJUNCTION FOR WETLANDS DEFENSE FUND

I, Wayne R. Ferren Jr., declare and state as follows:

1. I am currently employed in the Ecological Services Department of Maser Consulting P.A., an engineering firm located in Red Bank, New Jersey, where I have worked for the past seven years. I have visited Malibu Lagoon State Beach many times over the past 30 years during my regional study of southern California estuaries and other coastal wetlands. I also visited and conducted additional studies at Malibu Lagoon several times during the past year when I was retained by the Wetlands Defense Fund to evaluate the Malibu Lagoon Wetland Habitat Restoration and Enhancement Plan.

2. Professionally I am an environmental consultant specializing in wetland restoration, botanical studies, environmental planning and management, and impact assessment. I graduated from Rutgers University with a BA in Geology in 1970 and an MA in Biology in 1978. Previously I was employed at the University of California, Santa Barbara in the Department of Biological Sciences, subsequently named the Department of Ecology, Evolution, and Marine Biology. While employed there I served as the Herbarium Curator (1978-1995); Director of Carpinteria Salt Marsh Reserve (1987-2001); Executive Director of the Museum of Systematics and Ecology (1995-2004); and Associate Director of the UCSB Natural Reserve System (1997-2001). I joined the staff of Maser Consulting P.A. in 2004 following my retirement from UCSB.

3. I have written over 80 articles, chapters, treatments, and reports on various environmental topics, many of which have been published in peer-reviewed journals, proceedings, or books. A preponderance of these writings have focused on wetland issues,

especially the ecology of estuarine wetlands, including a study funded by the U.S. Environmental Protection Agency in the 1990s regarding the classification and description of wetlands of the southern California coast and coastal watersheds.

4. I have received eleven awards or honors for my contributions over the years, many of which are the result of my work related to the management and restoration of California wetland ecosystems. Examples include the following: American Planning Association Award of Merit for Carpinteria Salt Marsh Management Plan (1998); Southern California Wetland Recovery Project: Wetland Recovery Award (2000); Santa Barbara Wildlife Care Network Wildlife Sanctuary Award (2001); Santa Barbara Channelkeeper Wetland Ecology Award (2002); Regional Water Quality Control Board, Central Coast District: Water Quality Improvement Award (2003); American Society of Landscape Architects: Honor Award in General Design for "Lagoon Park" (2008); and National Wetlands Award, Conservation and Restoration Category (2009 Nominee).

5. Because of my expertise in southern California estuarine ecosystems and the restoration of coastal wetlands, I was invited to serve on several committees convened by the California State Coastal Conservancy to assist with the development of large restoration projects at important southern California estuarine ecosystems. Those I have contributed to include, for example, the Southern California Wetlands Recovery Project Science Advisory Panel; the Ballona Wetlands Restoration Project Science Advisory Committee; and the Ormond Beach Wetland Restoration Project Design Review Committee. I also was asked to be a member of the science panel convened for the Malibu Lagoon project in the mid-2000s, but I was unavailable to participate at that time.

///

6. I have reviewed the majority of the documents produced since 2000 regarding the proposed Malibu Lagoon Wetland Restoration and Enhancement Plan including the California Coastal Commission's ("CCC") staff reports for the project (application #4-07-098) and others, which are the basis for the Commission's approval of the Coastal Development Permit for the project. I prepared a review of the staff report and the project (Ferren Jr., W. R., October 12, 2010, Comments regarding the CCC Staff Report, Malibu Lagoon Restoration and Enhancement Project, Application No. 4-07-098, Agenda Item W6a, letter report to Ms. Bonnie Neeley, Chair & Mrs. Mary Shallenberger, Vice Chair, and Mr. Jack Ainsworth, Deputy Executive Director, California Coastal Commission), which also included an alternative restoration plan for the west marsh that preserved the existing structure and function of the habitats. A copy of my report is attached hereto as Exhibit A. I presented a summary of my review and also an overview of the alternative plan at the Commission's hearing on the project on October 13, 2010.

7. I base this declaration on my personal knowledge and understanding of the ecology of Malibu Lagoon acquired from visits and studies of the ecosystem, from discussions with other professionals, and from review and analysis of the many documents produced from independent studies over the past several decades as well as those produced in relationship to the Commission approved project.

MALIBU LAGOON EXISTING CONDITIONS

8. High quality, functioning habitat currently exists in the west marsh portion of the Malibu Lagoon ecosystem, the location of the Commission approved project. This is the same site of the twenty-eight-year-old restoration project implemented previously by the

Department of Parks and Recreation, which has been the focus of criticism by proponents of the new project. Contrary to their claims that the existing, previously restored conditions are seriously degraded and contribute to the water quality problems in the lagoon portion of the ecosystem, the west marsh is dominated largely by native plant species and supports a diverse array of resident and migratory native fauna. The Commission-approved project would destroy the existing high-quality resources and existing functional capacity of the estuarine ecosystem in an attempt to create a new set of habitats in its place.

9. The overall Malibu Lagoon ecosystem is of regional significance, and although there are water quality problems that impact the estuary and human use of the coastal resources of the Malibu coast, these problems are largely confined to the main lagoon creek-channel portion of the estuarine system (separate from the channels in the western marsh of the estuary), and these problems are due largely to nutrient pollution and bacteria resulting from watershed impacts to the ecosystem. The proposed restoration and enhancement project is not likely to change this situation in the lagoon, but would irreparably harm the high quality existing natural resources in the west marsh.

10. Southern California estuarine ecosystems can be categorized into several different functional groups. Many were formed under different environmental conditions and different landscape context; many are characterized by different hydrological and biogeochemical regimes; and many have been influenced by different land uses. Malibu Lagoon belongs to the "river and stream mouth category" of estuarine ecosystems with frequently closed mouths and reduced salinity, brackish water conditions rather than more marine influenced salt water conditions, due to regularly open mouths to the ocean. This is evidenced by the flora and fauna that characterize the ecosystem including the presence of

abundant Spiral Wigeongrass (*Ruppia cirrhosa*) and the federal and state listed Tidewater Goby (*Eucyclogobius newberryi*), both species of which are generally restricted to brackish rather than the salt water conditions. Proponents of the Commission-approved project ignored this fact when they lumped the different functional groups of estuaries together to compare the health and diversity of estuarine ecosystems that can be quite different and support different natural resources and functions.

11. Spiral Wigeongrass is one of several aquatic plant species that contributes to the formation of submerged aquatic vegetation (SAV). This type of vegetation has national significance for its important roles in estuarine ecosystems, but which has been declining nationally due to a variety of impacts to coastal wetland ecosystems. Malibu Lagoon, and particularly the channels of the west marsh, supports a large bed of SAV dominated by Spiral Wigeongrass. As a form of SAV, it helps oxygenate the water, provides habitat for fish and aquatic invertebrates, and provides food for resident and migratory waterfowl. When found in brackish water estuarine of southern California, it is nearly always associated with a healthy population of Tidewater Goby, for which it provides habitat as at Malibu Lagoon. The SAV beds at Malibu are clearly a type of environmentally sensitive habitat, which would be destroyed by implementation of the Commission approved project in the west marsh, seriously impacting the otherwise healthy population of Tidewater Goby.

LACK OF ADEQUATE ENVIRONMENTAL REVIEW

12. Submerged aquatic vegetation (SAV) was not identified or discussed as a plant community, vegetation type, or resource/species of importance within planning and review documents related to the proposed restoration and enhancement plan including, for example,

the Restoration and Enhancement Plan, the final Environmental Impact Report ("EIR") for the project, and the Staff Report. In fact, the plant community is either absent from the documents and their associated analyses and letters of support, or it is mentioned only in passing within the aquatic benthic community and macrophytic algae discussions where SAV is considered evidence of poor water quality. This is a complete mischaracterization of the importance of SAV within the Malibu Lagoon ecosystem.   The lack of treatment of this critical component of the ecosystem brings into question the entire planning and review process related to the Commission approved project. A new environmental review is warranted because the potential impacts to the SAV beds and their important ecosystem functions and role in the brackish water ecosystem were not identified or addressed. Furthermore, no mitigation measures were proposed or analyzed in the EIR and staff report to compensate for the temporal and long-term impacts to SAV and the organisms and ecosystem functions dependent upon SAV including the environmentally sensitive and habitat-restricted Tidewater Goby.

13. The characterization of Malibu Lagoon ecosystem as highly degraded, in particular the west marsh, and the purported benefits of the Restoration and Enhancement Plan to improve a coastal wetland ecosystem, which is in fact not as severely degraded as stated, misrepresent the enormous benefits of the of the existing ecosystem functions and overstate the benefits of the Commission approved Plan.

EXISTING PUBLIC ACCESS

14. The existing conditions of Malibu Lagoon State Beach, including the public access trail system, designed as part of the previous restoration project in the west marsh, are

the existing stable conditions. The present access system has been in place for nearly three decades, providing passive recreational activities such as beach access, bird watching, photography, and botanizing in proximity to the estuarine habitats and resident and migratory wildlife. The access system provides excellent opportunities for viewing Malibu Lagoon and the wildlife it supports with little apparent negative impact after nearly three decades of site maturity. These stable conditions would be seriously disrupted during the implementation of the proposed project and ultimately diminished permanently due to the project, which includes the removal of the central access trail, eliminating one of the principle access routes to the state beach that provides excellent opportunities to learn firsthand about the importance of coastal wetlands and other nature study.

PROJECT ALTERNATIVES

15. Although Malibu Lagoon State Beach has high functioning wetlands, the lack of maintenance and ecosystem monitoring over the years has resulted in problems that would be anticipated in the modern landscape with altered watersheds and region-wide impacts. For example, in spite of the preponderance of native plant species and biomass, invasive exotic plants have colonized portions of the state beach, including some areas of the west marsh where the Commission-approved Restoration and Enhancement Project would be implemented. Also, water quality can be a serious problem within the lagoon portion of the project, but represents only a minor issue within some portions of the west marsh. Implementation of the Commission approved Plan would eliminate all vegetation at the west marsh, hence eliminating the invasive as well as several acres of native vegetation, requiring extensive grading and complete revegetation of the entire site. The Plan also would result in

unnecessary grading and restructuring of channels, activities that will have little or no influence on improving water quality in the lagoon portion of the ecosystem in spite of the claims of project proponents.

16. In my October 12, 2010 letter to the Commission cited above, I proposed an alternate plan titled the "Malibu Lagoon Conceptual Wetland Rejuvenation Plan", which would enhance the existing conditions through a phased approach of invasive species eradication; west marsh channel modifications and selective organic material removal; marsh, transition zone, and dune habitat enhancements; and preparation and use of a "Malibu Lagoon State Beach Management and Maintenance Manual." The Rejuvenation Plan improves existing conditions impacted through lack of effective management and maintenance, while preserving the high functioning elements of the nearly three decades-old restoration project. The relatively minor problems of the west marsh do not warrant the complete destruction of the existing conditions and subsequent attempt to create a newly designed site at great expense and with no guarantees of higher functioning conditions than the existing conditions. The Rejuvenation Plan would retain the non-controversial and likely effective elements of the Commission approved project, while avoiding the more destructive elements of the project.

I declare under penalty of perjury the foregoing is true and correct. Executed on this 28th day of March, 2011 at Red Bank, New Jersey.

Wayne R. Ferren Jr.
Project Manager
Ecological Services Department
Maser Consulting, P.A.

SECOND DECLARATION FROM ROBERT VAN DE HOEK
IN SUPPORT OF INJUNCTION FOR WETLANDS DEFENSE FUND

I, Robert van de Hoek, declare as follows:

1. I have analyzed the declarations and scientific evidence submitted by the Agencies in this case. My conclusion remains that the Project fails to meet both the goals of protecting and improving Malibu Lagoon. Not only would this Project cause severe interim harm to existing habitat values upon construction, but several species are certain to suffer *long-term harm* as well. This damage is unnecessary because engineering and biological evidence was submitted, and not adequately refuted, that alternative means to achieve project goals would be less damaging to our environment.

ENVIRONMENTAL HARMS

2. It is axiomatic that the dredging, grading, and filling of over 87,000 cubic feet of wetlands in an environmentally sensitive habitat area (ESHA) would cause severe short-term harm to any wildlife that exists in that area. However, extensive expert testimony was also submitted to support this conclusion, both in the Declaration of Wayne Ferren (*see* par. 8-11, Exh. A, pp. 3, 5) and in my first declaration (par. 9-26).

3. The Agencies fail to refute that these short-term impacts would occur if construction commences on June 1. To the contrary, Richard Ambrose, in his declaration, correctly acknowledges that submerged aquatic vegetation (SAV) will be eliminated and the Tidewater goby negatively affected by construction. *See* Ambrose Dec., par. 14. Add to this that the goby (fish) would be entirely eliminated in the short-term from the western lagoon because this area is to be dewatered during construction (the fish will be captured and relocated, or, if not so lucky, killed by machinery or asphyxiated). These impacts constitute severe harm.

4. Short-term harm from construction also would occur to other wildlife in the lagoon. A study by Ambrose and Orme (2000) states, "*Despite its small size, irregular topography, and unusual vegetation patterns, the restored salt Marsh [Malibu Lagoon] is used extensively by wildlife, particularly by fish and birds.*"[1] My own personal observations from 1999 to 2011 repeatedly confirm that the western portion of the lagoon is healthy and functioning with low-salinity brackish and freshwater habitats. *See also* FEIR, pp. 6-11; 12-4 (citing study (Hovore & Associates (2005)) finding healthy macroinvertebrates that support brackish and freshwater habitats (the FEIR is attached as Exhibit B to the Susan A. Austin Declaration)). Eutrophication (high nutrient levels) can be an important natural process in these watery ecosystems each summer, providing resources for the exuberance of life which occurs with warm weather. In the western complex of Malibu Lagoon, the high nutrients support the foodchain, and there is a flourishing of wetland emergent vegetation of bulrush, sedge, cat-tails, marsh daisy, numbering to 27 kinds of native wetland plants with a history that extends back to at least the 1950s. In the summers the water and sky above are alive with the movement of dragonflies, damselflies, mayflies, spread-wings, and a countless myriad number of additional animals without backbones (macro-invertebrates). *See* Exhibit A (Wetlands Defense Report #23, April 2011). All of these resources would be harmed during construction.

5. Additionally, the construction schedule is not well timed to avoid the breeding schedules of birds and the Tidewater goby, and in fact, conflicts with the nesting season for most birds in the area. I base this conclusion on the following evidence: First, to protect the

[1] Ambrose, R. F. and A. R. Orme. 2000. Lower Malibu Creek and Lagoon Resource Enhancement and Management. Final Report to the California State Coastal Conservancy. University of California, Los Angeles.

Tidewater Goby, the study relied on by the FEIR itself recommends that construction occur outside the summer months:

> "The abundance of Tidewater Gobies poses a significant constraint to the proposed restoration. The construction of the proposed restoration of Malibu Lagoon should be timed to avoid disturbance of the western shoreline during the months of May-November, when larval Tidewater Gobies are using the nearshore habitat."

FEIR, pp. 6-11, 6-14, 6-15 & 12-3, referencing Dagit and Swift (2005). Dr. Camm Swift, a co-author of this 2005 study, is a recognized expert on the Tidewater Goby. He also is a co-author of the two articles from 1999 referenced in the Ambrose Declaration, now outdated and superceded by Dr. Swift's own conclusions in the studies relied on by the FEIR.[2]

6. Second, avian species would be severely impacted by the construction schedule. Supporting expert declarations for the Agencies do not indicate which avian species have breeding schedules that would be impacted (or not impacted) by the summer months of construction, but the list of the former is extensive. The Snowy Plover, Gadwall, Mallard, Ruddy Duck, American Coot, Pied-billed Grebe, Common Yellowthroat, Song Sparrow, Marsh Wren, Sora, Virginia Rail, Killdeer, Black Phoebe, Barn Swallow, Great Blue Heron, and Black-crowned Night Heron – *all* have bird nesting seasons that extend into the June 1 – October 15 construction period. Reproduction and rearing young birds to the time of fledging, takes longer for larger birds such as waterfowl and wading birds. Also, waterfowl and wading birds extend their nesting activities in summer and delay nesting to be timed with the higher water levels in summer at Malibu Lagoon, and song birds mate for a second nesting in summer in the reed beds of the emergent wetland vegetation and wetland shrubs adjacent to the water.

---

[2] While there is no dispute that Tidewater Gobies breed in the summer months during the proposed construction, Mr. Ambrose asserts that Tidewater Gobies which occur outside the construction footprint will not be affected. This is of little relevance, however, because the majority of juvenile and some adult gobies seek refuge and habitat in SAV of the western lagoon to be dredged and filled.

The food for the young birds comes primarily from wetland plants and aquatic invertebrates, including in the aerial portion of their life-cycle as adult insects.

7. Finally, the endangered California Least Tern (*Sterna antillarum browni*) relies on Malibu Lagoon for post-breeding feeding of young birds in preparation for their long migration. I have personally observed from 2001-2011 annual well-established patterns of this behavior by the California Least Tern, including feeding throughout the western part of the lagoon, especially near the bridges where fish tend to congregate. The FEIR mitigation requirement for California Least Tern supports this conclusion by stating that the construction timing should avoid the months of July and August. FEIR 6-35.

8. With regard to long-term impacts (merits of the Project), Mr. Ambrose argues that the lagoon is in a degraded condition, the damage from construction will be temporary, and all habitat values will ultimately be improved by the Project. *Ibid*., par. 5, 10, 14. These conclusions are unpersuasive for two main reasons. First, the lagoon is not currently degraded with respect to SAV (e.g., Wigeon Grass, *Ruppia, sp.*) and the Tidewater Goby, and both SAV and Tidewater Goby are thriving in the present ecology of the western lagoon. *See*, e.g., first van de Hoek Declaration, par. 13-17. The new habitat being created would not sustain the same level of SAV or Tidewater Goby, and both SAV and Tidewater Goby will be irreparably harmed. Ferren Declaration, Exh. A, p. 3 (project would "reduce the functional capacity of the Malibu Lagoon as a river and stream mouth category of wetlands").

9. Second, there is no specific analysis or evidence of just how long the alleged "short-term" harms will last. The development permit for this project is open-ended to allow development activities in the future, if deemed necessary at the Agencies' discretion, and the Coastal Commission's Executive Director can extend the project construction for "good cause"

beyond the June 1 to October 15 time frame. *See* Staff Report, pp. 10, 20 (attached as Exh. A of Birkelund declaration). Thus, the environmental impacts that are allegedly short-term could extend an unknown amount of time. Moreover, even the best of restoration projects are uncertain and it can take decades for ecosystems to ultimately recovery and thrive. Malibu Lagoon, for example, has taken decades to reach its current state of equilibrium since it underwent the last 1983 restoration.

PROJECT ALTERNATIVES

10. Maser Consulting, P.A., presented and described in considerable detail a proposed alternative -- the Malibu Lagoon Conceptual Wetland Rejuvenation Plan (Rejuvenation Plan) – that satisfies all of the Project objectives to improve both future habitat *and* water quality. *See* Ferren Dec., Exhibit A, p. 6-10, and attached color diagram of the alternative. "This Rejuvenation alternative also will improve habitat and water quality as well" (*ibid.*, p. 6) and like the proposed Project, will entail "Improved circulation, including tidal circulation when the estuary mouth is open," (*ibid.,* p. 11).

11. There is no meaningful analysis presented by the opposition that Maser Consulting, a highly respected engineering firm, would not be able to implement this proposed alternative to achieve its stated objectives.

12. Further, the Rejuvenation Plan is but one example of what could be done:

> "[T]here are numerous environmental enhancements that would rejuvenate the existing conditions included habitat and water quality without the grading [and filling] of approximately 88,000 cubic yards of wetland and upland habitats and soils. *Ibid*., p. 6.
>
> "Also, old channels could be reconnected and new connections could be added to existing channels, as feasible, to increase circulation. For example, one alternative is to connect the two portions of the north channel (north and south of Pacific Coast Highway). Also, a new alternative channel through portions of the proposed expanded marsh would likely increase circulation in

> the northern portion of the expanded marsh [e.g., improve water quality]. None of these actions require widespread alteration of the habitats and long-term disruption of the estuarine ecosystem." *Ibid*., p. 7.

The Agencies did not examine such options or provide any meaningful engineering or scientific analysis of project alternatives to avoid extensive grading in the western lagoon.

13. The Rejuvenation Plan also has the advantage of retaining two trails to the beach, preserving the public access benefits of the Wooden Bridges Trail. *Ibid*., p. 10. The bridges have been in place since 1983 and the use of these structures is in balance with the existing wildlife in the western lagoon. *Ibid*. ("presence of passive human activities in proximity to resident and migratory wildlife is the stable existing conditions"). Wetlands-dependent species such as herons and egrets in fact perch upon the bridges. In 2010, I observed two species of wetland-obligate birds (the Black Phoebe and Barn Swallow) nesting under the bridges, which attached and built their delicate nests of wetland-soil (mud) to the underside of the bridges, and the and laid a clutch of 4 and 5 eggs respectively, the birds disregarding people walking over the bridges. On a routine basis, I also observe other wetland-obligate birds, namely the Song Sparrow and Common Yellowthroat, stopping adjacent to the wooden bridges to sing for nesting territories, as well as to gather wetland plants for lining their nests for all the public to see as they walk across the bridges.

14. According to Richard Ambrose, the project will increase wetlands by 2-4 acres, however, the alternative presented by Wayne Ferren will also increase wetlands by 2-4 acres in the area to the east of the parking area. The new wetlands that Ferren's alternative proposes would be an additional type of wetland as a vernal pond marsh, which would support wildlife such as the Pacific Chorus Frog (formerly known as the Pacific Tree Frog),

and several unique wetland plants that can be restored in order to add to the biodiversity of Malibu Lagoon.

15. I firmly believe Malibu Lagoon would benefit from a restoration plan with alternatives that preserve the existing wetland soils, wetland vegetation, waters rich in life and nutrients, aquatic invertebrates, water-dependent birds, land mammals. However, the assertion that bulldozing of tens of thousands of cubic yards of living soils is needed to achieve these objectives is false.[3] Techniques for wetlands restoration are constantly improving. A good example of this is the community-based restoration program, known as "Digging-In," which the California Coastal Commission supports and promotes at Upper Newport Bay Ecological Reserve. See www.coastal.ca.gov/publiced/UNBweb/intro.pdf. The father of ecological restoration, Aldo Leopold, has stated eloquently that we do not want to remove any parts of a functioning ecosystem. The first part to intelligent tinkering is to save the parts. To bulldoze, dredge, dike, and fill the wetlands at Malibu Lagoon would be throwing away much life, including a high risk of extirpation of endangered species and rare species, not to mention many important species at the base of the food web. Ecological restoration is still in its infancy, as a speculative science, with much experimentation and engineering, and much failure.

[3] How to expand the lagoon with the acquisition of the adjacent golf course (which I fully support) has not been studied and would require a new environmental analysis and permits. There is no reason to believe, however, that project alternatives could not accommodate such future expansions. I was directly involved circa 2004, as an expert consultant with the agreement by the private land owner of the 10-acre golf course that is contiguous to Malibu Lagoon on the western perimeter to deed his property to the State. The legal deed restriction keeps a majority of the acreage (6-8 acres) to be maintained as upland (not watery wetland) in a passive parkland setting; and approximately 2-4 acres would be wetland but there is no determination of what type of wetland is to be created. Settlement Agreement, by and between A. Jerrold Perenchio, Margaret Rose Perenchio and the Coastal Commission, dated June 24, 2004. Therefore, it is premature to consider that the golf course will be tidally connected with water to Malibu Lagoon, and it is beyond the scope of this project at hand.

WATER QUALITY

16. Although the proposed alternatives would address water quality to the same extent as the project, the potential benefits of improving water circulation in the western portion of the lagoon should not be overstated. The vast majority of water quality issues reside outside the western portion of the lagoon that would be modified by the Project.

17. The FEIR for the project concludes that the impaired watershed of Malibu Lagoon and Malibu Creek, and their resulting listing under the Clean Water Act section 303(d), is due primarily to: (1) excess influx nutrients; and (2) excess influx of bacteria. *FEIR, pp.* 5-6, 5-9. Nutrients causing of concern include phosphorus, of which 95% or more is attributed to septic systems, upland systems, and surface runoff, and nitrogen, of which 83% or more derives from upland and other sources outside the lagoon. *Ibid*. Similarly, 86% or more of the offending bacteria derive from septic systems and leach fields outside the lagoon. *Ibid*., p. 5-7. These important details are not addressed in the declaration of Samuel Unger. It is clear, though, that improving circulation in the western lagoon will not address influx of pollutants that is causing the 303(d) water quality impairments.[4]

18. Dr. Hartmut S Walter reaches the same conclusion that offsite sources of pollution are the overwhelming cause of poor water quality and must be addressed before water quality will improve. *See* Exhibit B (Walter, Hartmut S., *Letter to Coastal Commission*, dated Sept. 24, 2010, p. 2, stating "The existing problems with water quality, water circulation, alien plants, etc. are largely of an external nature, i.e. they come into the lagoon system from the outside and should be solved before entering the lagoon.")

---

[4] For nine years, Malibu Lagoon has been listed under the CWA section 303(d) as impaired for nine years. *Total Maximum Daily Loads for Bacteria in the Malibu Creek Watershed*, US Environmental Protection Agency Region, March 21, 2003

19. Furthermore, within Malibu Lagoon itself, water quality is impaired primarily in the main channel not the western complex proposed for dredging. The dense algae indicative of water quality and fish kill issues is typically confined to the lagoon's main channel, which receives watershed runoff. Ferren Dec., Exh. A, p. 7. Maser Consulting includes an aerial photograph clearly demonstrate that algae growth proliferates in the main channel but is absent in the western complex. *Id*. (*see* color map of algae growth attached). Existing conditions and plant life in the western channels already filter and remove water pollution to some degree. The main lagoon channel is not included as part of the Project and its pollution problems would remain as is.

20. As a trained geomorphologist with applied experience in hydrology, my conclusions also are that the western complex of Malibu Lagoon is operating in a healthy manner with regard to water quality. U.S. Geological Survey scientist, Dr. John A. Izbicki, presented his results of a thorough investigation of water quality at Malibu Lagoon, on April 11, 2011, to the Malibu City Council at a hearing to consider this project. He concluded that any bacteria derived from wildlife, namely birds, is part of nature. In such circumstances, bacteria adds biological enrichment for plant life, fish life, and aquatic macroinvertebrates, and that the Regional Water Board has yet to account for these new findings. Similarly, the EPA and Regional Water Board will need to re-evaluate the nutrient TMDLs at Malibu Lagoon due to these new USGS findings. The federal Environmental Protection Agencies' criteria for listing water bodies as impaired and requiring TMDLs are intended to be "fluid," and the Total Maximum Dissolved Loads for Bacteria in Malibu Creek Watershed [Total Maximum Daily Loads for Bacteria in the Malibu Creek Watershed, US Environmental Protection Agency Region, March 21, 2003] specifically provides:

> "[I]t may prove that the birds in Malibu Lagoon are sufficient alone to cause an exceedance. If this proves to be the case, we will recommend that the Regional Board consider re-evaluating the TMDL using the natural source exclusion for implementing the water quality standard."

If birds are the source of the bacteria, coming from bird feces, which is natural, then Malibu Creek is to be considered healthy, not impaired because all the various kinds of water birds, including migratory seabirds, such as pelicans and gulls are part of nature. Similarly, the EPA and Regional Water Board will need to re-evaluate the nutrient TMDLs at Malibu Lagoon due to these new USGS findings, especially since the abundance of fish and aquatic invertebrates is now extremely high and healthy according to Hovore, Dagit & Swift and my own observations.

QUALIFICATIONS OF EXPERTS

21. Mr. Wayne Ferren is highly regarded in the field of wetlands restoration, as is his firm, Maser Consulting, P.A. Mr. Ferren's curriculum vitae is attached as Exhibit C. As shown, Mr. Ferren's qualifications are impressive and his expert opinion of the highest caliber. His engineering firm, Maser Consulting, is well-equipped to examine project impacts and offer viable project alternatives. *See, e.g.,* Ferren Dec., Exh. A (alternatives map attached). While professors in academia will notably excel at publishing papers – it being a core of function of their jobs – scientists and engineers in the private sector typically are not as prolific in publishing, nor are they expected to be. Private sector and academic experts, however, are equally capable of offering credible expertise and opinions.

22. My curriculum vitae is attached as Exhibit D. I have spent most of my adult life studying and working with wetlands. My focus has been on genuine restoration projects that are less invasive than using heavy-handed, machinery, but rather ones that include protecting existing ecological values, which are often under-appreciated and under-

recognized. Especially in this regard, I have considerable knowledge and expertise. I also have engaged in other lawsuits as an expert and successfully offered key testimony, including for the successful challenge and court decision in San Francisco Superior Court of a Coastal Commission permit granted to the City of Los Angeles for dredging of the Ballona Wetlands Grand Canal Lagoon.

I declare under penalty of perjury the foregoing is true and correct. Executed on this 2ND day of May 2011 at Los Angeles, California.

Robert van de Hoek

Robert van de Hoek
Conservation Biologist, Wetlands Scientist
Wetlands Defense Fund & Ballona Institute
322 Culver Boulevard, Suite 317
Los Angeles (Playa del Rey), CA 90293

EXHIBIT A

ATTACHMENT TO SECOND DECLARATION OF ROY VAN DE HOEK

REPLY BRIEF IN SUPPORT OF PRELIMINARY INJUNCTION
OR, IN THE ALTERNATIVE, A STAY ORDER

Wetland Native Plants at Malibu Lagoon: Los Angeles County, California

Robert J. van de Hoek
Botanist, Ecologist, Naturalist
Ballona Institute
322 Culver Boulevard, Suite 317
Los Angeles, CA 90293

Wetlands Defense Fund
Report #23

April, 2011

Dedicated to Peter Raven, Sierra Club Life-time Member Over 50 Years

Introduction, Materials and Methods

The first field botanist that I am aware of to scientifically investigate Malibu Lagoon for wetland plants was Peter Raven (UCLA PhD doctoral student) on September 6, 1959. His observations and plant voucher collections were deposited at three known institutions with herbaria (UC Berkeley Jepson Herbarium, UCLA Herbarium, and Rancho Santa Ana Botanic Garden Herbarium). I contacted the collection manager at each of these institutions, and they provided me from their electronic databases, the known specimens of Peter Raven that were collected at Malibu Lagoon. After synthesis of this information, I was able to calculate that Peter Raven collected 27 native plant wetland species at Malibu Lagoon on September 6, 1959. His collections were assembled together with those of Henry Thompson (UCLA Professor of Biology) in 1966 for a book: *Flora of the Santa Monica Mountains, California*.

The second field botanist to observe plants at Malibu Lagoon was Bob Muns, who completed a checklist in 1988, which is titled: *Flora of Malibu Lagoon State Park*. He observed 42 native species of plants at Malibu Lagoon.

The third field botanist to observe and report the findings in a checklist was Carl Wishner, who completed his study in 2005. He reported 34 species of native plants, most of them either wetland species or dune species.

The author of this report, also a field botanist, has made repeated visits to Malibu Lagoon from 1999 to 2011, including a visit in 2010 with another field botanist and plant ecologist named Wayne Ferren.

This report provides a synthesis of all the known wetland native plants found at Malibu Lagoon by the field botanists listed above over the last 50 years (1959-2011), thereby providing a detailed knowledge of historical ecology and current ecology.

This investigation was prompted as a result of concern that a "bulldozing" project, which as described in the EIR, will remove all native plants and native vegetative cover, eliminating wetland habitat for birds, fish, and invertebrates.

Acknowledgments

I wish to acknowledge U.S. Department of Interior, which rated me professionally qualified in 1993 as a Botanist in the GS professional series. And I wish to acknowledge the California Department of Fish and Game, which rated me qualified in 1995 as Botanist.

I would especially like to thank Marcia Hanscom, executive director, with the Wetlands Defense Fund, a project of the International Humanities Center. She provided emotional support which led to the completion of this report, which hopefully contributes science in support of conservation and preservation of the wetlands, coastal dune and strand, meadows, willow woodland, and shallow waters of the several sloughs that are interconnect with the marsh and pedestrian bridges that act as boardwalks over the water at Malibu Lagoon.

I would like to thank conservation leaders of environmental groups for their confidence in me as well as emotional support, including Julio Bermejo, Dr. Rosemarie White, and David Warren of the Sierra Club. And with the San Fernando Valley Audubon Society, I would like to thank Mark Osokow, Muriel Kotin, and Kris Ohlenkamp. The Pasadena Audubon Society is also to be acknowledge, particularly the conservation chairwoman, Ms. Laura Garrett.

I would like to acknowledge assistance from Ms. Joy England, Collections Manager at Rancho Santa Ana Botanic Garden in Claremont, with assistance, permission to access the collections, especially those of 1959 by Peter Raven.

In addition, I would like to acknowledge Mr. Barry Prigge (Botansit), who is Collections Manager of the Herbarium at UCLA for assistance with use of the herbarium over many years, inscribing my second edition of the Flora of Santa Monica Mountains, and for sending me an electronic data base of the collections by Peter Raven in 1959, when Peter was a PhD doctoral student at UCLA in the Botany Department.

I would like to thank Dr. Maynard Moe, botanist and collections manager at UC Berkeley in the Jepson Herbarium, for assistance with finding specimens of plants collected by Peter Raven in 1959.

I would like to acknowledge Lloyd Kiff and Kay Nakamura (1979) for the excellent work on a bird report, which proves reed beds present in 1930s to 1940s.

Lastly, I would like to thank Dr. Peter Raven, distinguished scientist and botanist, director of the Missouri Botanic Garden, recipient of numerous honorary PhDs from various learned institutions, and author of numerous Floras from many geographic regions of the world, including several in the state of California. I enjoyed a very nice personal conversation with Peter in the Santa Monica Mountains, at the newly preserved parkland called King Gillette Ranch. On June 6, 2010. I learned that Peter was a life member of the Sierra Club for over 50 years at this time. At King Gillette Ranch, Peter Raven was invited to give a distinguished lecture on conservation. I enjoyed our conversation afterward at lunch, and Peter wanted to lend his support to save Malibu Lagoon and the Ballona Wetlands, with a letter of support. Circa 1960, Peter discovered a new species, *Camissonia lewisii*, found at Ballona, and in a few other localities in our coastal sandy soils, likely at Malibu, which he named for his PhD advisor, Dr. Harlan Lewis, a UCLA Botanist.

Results

The results of Table 1 shows clearly four species of native plants that Peter Raven found in 1959, were not relocated in 1988, and therefore believed extirpated circa 1983, as a result of the recontouring by bulldozers of a very complex set of wetlands at Malibu Lagoon. These four species, noted in Table 1, are listed below:

1. Raven#14365: *Aster subulatus* var. *ligulatus*
2. Raven#14373: *Suaeda taxifolia*
3. Raven#14382: *Euthamia occidentalis*
4. Raven#14405: *Stephanomeria diegensis*

There are also several species believed to have become extirpated prior to the 1959 visit by Peter Raven. These species likely disappeared after 1930, when the private ranch was opened up to the public with the new CCC/WPA built Roosevelt Highway, which would later become known as Pacific Coast Highway and Highway 1, which are the two names still used today. The building of home on the barrier beach (aka sand spit) that became known as Malibu Colony, together with controlling Malibu Creek with rip-rap boulders, construction of the Adamson Home on the east side of Malibu Lagoon, resulted in loss of habitat for the following wetland species: Salt Marsh Bird's Beak, Marsh Milkvetch, and *Baccharis douglasii*. Additional species that were believed to be lost based on a comparison of Malibu Lagoon to similar ecosystems of southern California may include 10 additional species. None of these species has been proposed as genuine restoration here.

Table 1

Native Flora of Malibu Lagoon Within Proposed Project Boundary:

Annotated Floristic Catalogue of Native Plants from 1959 to 2011
Arranged Chronologically by Peter Raven Collection Numbers,
Followed by Observations of Muns, Wishner, and van de Hoek

Ruppia maritima (Wigeon Grass). Submerged aquatic vegetation.
Raven#14360. Noted by Muns, Wishner and van de Hoek in 2011.

Frankenia salina (Alkali Heath). Wetland obligate plant at high water line.
Raven#14361. Noted by Muns, Wishner, and van de Hoek in 2011.

Baccharis pilularis (Coyote Bush). High ground between bridges and perimeter.
Raven#14362. Noted by Muns, Wishner, and van de Hoek in 2011.

Jaumea carnosa (Marsh Daisy). In wet soil at water line with *Cuscuta salina*.
Raven#14363. Noted by Muns, Wishner, and van de Hoek in 2011.
Note that Raven found a parasite on *J. carnosa* (see below: Raven#14364).

Cuscuta salina (Salt Marsh Dodder). In wet soils as a parasite on Marsh Daisy.
Raven#14364. Noted by Muns, Wishner, and van de Hoek in 2011.
Raven noted: "Principally on *Jaumea*, salt marsh at mouth of Malibu Ck."

In 2003, van de Hoek genuinely restored *C. salina* to Ballona Wetlands.

Aster subulatus var. *ligulatus* (Shore Daisy). In freshwater pond edges.
Raven #14365. Extirpated circa 1983 by restoration project.
Not noted or listed by Muns or Wishner, nor observed by van de Hoek.

Platanus racemosa. (California Sycamore). At periphery of project boundary.
Raven#14368. Noted by Muns, Wishner, and van de Hoek, in 2011.

Sarcocornia pacifica (Pacific Pickleplant). Abundant at water line in wet soils.
Raven#14369. Noted by Muns and Wishner as Salicornia virginica.
Noted by van de Hoek in 2011, with the new scientific name given 2001.

Atriplex triangularis (Spearscale or Saltbush). Near wet soils in marsh.
Raven#14370. Noted by Muns, Wishner, and van de Hoek in 2011.

Schoenoplectus californicus (Tule). At all 4 sloughs by 4 bridges. 17 feet tall.
Raven#14371. Noted by Muns, Wishner, and van de Hoek in 2011.

Schoenoplectss robustus (Big Bulrush). Roots in wet soil, leaves emerge water.
Raven#14372. Noted by Muns, Wishner, and van de Hoek in 2011.

Suaeda taxifolia (Sea Lite, formerly Sea Blite). Extirpated circa 1983 by restoration.
Raven#14373. Raven noted its presence in 1959, published in 1966.
Not seen by Muns, Wishner, nor van de Hoek; true restoration needed.

Heliotropium curassavicum (Seaside Heliotrope). Also see Raven#14400.
Raven #14374. Noted by Muns, Wishner, and van de Hoek in 2011.
Raven#14374 noted on voucher that one population occurred on dunes.
Raven said: "Leaves broader and more succulent than plants off dunes."

Artemisia douglasiana (Dream Sage or Mugwort). Fairly common at waters edge.
Raven#14380. Noted by Muns, WIshner, and van de Hoek in 2011.

Ambrosia psilostachya (Western Ragwort). Fairly common.
Raven#14381. Noted by Muns, Wishner, and van de Hoek in 2011.

Euthamia occidentalis (Western Goldenrod). Extirpated circa 1983.
Raven#14382. Not noted by Muns, Wishner, nor van de Hoek in 2011.

Baccharis salicifolia (Seep Willow, Mulefat, Water Wally). Wetland-riparian area.
Raven#14383. Noted by Muns, Wishner, and van de Hoek in 2011.

Atriplex lentiformis breweri (Brewer's Saltbush) Wetland restricted species.
Raven#14384. Noted by Muns, Wishner, and van de Hoek in 2011.

Juncus mexicanus (Rush). Rare wetland species at Malibu Lagoon.

Raven#14385. Noted by Muns, Wishner, but not by van de Hoek in 2011.
Spergularia mactotheca (Sand Spurrey). Sandy and wet-soil restricted.
Raven#14390. Noted by Muns, Wishner, and van de Hoek in 2011.

Populus balsamifera tirchocarpa (Cottonwood). Riparian species now extirpated.
Raven#14394. Not noted by Muns, Wishner, nor van de Hoek in 2011.

Salix laevigata (Red Willow). Wetland species of riparian areas.
Raven#14396. Noted by Wishner and van de Hoek in 2011, not by Muns.

Heliotropium curassavicum (Seaside Heliotrope). Also see Raven#14374.
Raven#14400. Noted by Muns and Wishner and van de Hoek in 2011.
Raven noted a population that occurred along Malibu Creek, in non-dune soil.

Rumex salicifolius (Willow Dock). Fringe of Freshwater wetland; extant.
Raven#14403. Not noted by Muns, noted by Wishner and van de Hoek, 2011.

Stephanomeria diegensis (Native Chicory). Extirpated circa 1983 by restoration.
Raven#14405. Not noted by Muns, Wishner, nor by van de Hoek in 2011.

Cyperus eragrostis (Tall Cyperus). Wetland emergent species, roots in water.
Raven#14407. Wishner, van de Hoek in 2011, not noted by Muns.

Typha latifolia (Broad-leaved Cattail). Wetland in water at Bridge 4.
Raven#14409. Not noted by Muns or Wishner. Noted by van de Hoek, 2011.

Typha domingensis (Southern Cattail). Wetland slough up creek at Bridge 4.
Raven#14410. Noted by Wishner and van de Hoek in 2011.

NOTE: Three Native Wetland Plants Not Collected by Peter Raven

Distichlis spicata (Saltgrass). Exclusive host habitat of rare coastal butterfly.
Not collected by Raven due to not in flower at season (late summer) of visit.
Observed by Muns, Wishner, and by van de Hoek from 1977-2011.

Limonium californicum (Sea Lavender, Marsh Rosemary). Rare in marsh.
Not collected by Raven. Noted by Muns and Wishner, not by van de Hoek.

Anemopsis californica (Yerba Mansa). Parking lot planted, van de Hoek, 2010.
Raven (1966) listed it at lagoon; not noted by Muns, nor by Wishner.

Conclusion

The early collecting of Peter Raven clearly indicates that freshwater marsh with brackish waters of low salinity, wet meadows, alkaline vernal pools, and freshwater ponds were present. Bird lists of the past prove that reed bed vegetation was present in 1930s and 1940s. Early photographs that I have investigated with my extensive background in geography with air photo interpretation, and my geologic academic training in photo-geology allow this investigator to interpret photographs of the 1920s as showing reed bed vegetation, freshwater ponds, alkaline vernal pools that were non-tidal, and vernal pools of non-tidal freshwater to be present within the Malibu Lagoon proposed project boundary. In essence, there is good evidence that throughout the early 20th Century and now in the early 21st Century, a period of more than 100 years of historythat freshwater marsh, low-salinity brackish marsh, vernal pools and some hyper-saline vernal pools were present at Malibu Lagoon. Any restoration that is true and genuine to ecology, history, and ecosystem process and function, would have to include restoration of these types of habitats and communities.

Literature Cited

Muns, Bob. 1986. Flora of Malibu Lagoon State Park. 10 pages.

Raven, P. H. and H. J. Thompson. 1966. Flora of the Santa Monica Mountains, California. UCLA. 189 pages.

Wishner, C. 2005. Floristic Survey of Malibu Lagoon State Beach. ENVICOM. 10 p.

Kiff, L. & K. Nakamura. 1979. Birds of Malibu Lagoon. Imprint 4(2): 1-13.

EXHIBIT B

ATTACHMENT TO SECOND DECLARATION OF ROY VAN DE HOEK

REPLY BRIEF IN SUPPORT OF PRELIMINARY INJUNCTION
OR, IN THE ALTERNATIVE, A STAY ORDER

UNIVERSITY OF CALIFORNIA, LOS ANGELES UCLA

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO SANTA BARBARA · SANTA CRUZ

DEPARTMENT OF GEOGRAPHY
1255 BUNCHE HALL
405 HILGARD AVENUE
LOS ANGELES, CALIFORNIA 90095-1524
(310) 825-1071 FAX (310) 206-5976

Copy

September 24, 2010

Ms. Bonny Neely
Chair, California Coastal Commission
Board of Supervisors
825 Fifth street, Room 111
Eureka, CA 95501

RE: ***Malibu Lagoon Restoration***

Please permit me to communicate in writing my assessment of the restoration needs for Malibu Lagoon (I will not be able to attend the upcoming October 2010 meeting of the California Coastal Commission due to travel).

I am a recently retired UCLA professor specializing in ecosystem analysis, endangered species conservation, biogeography, and conservation education. I have visited Malibu Lagoon since 1972. I have taken many students over the years to the lagoon as part of undergraduate and graduate field courses. I am also a keen wildlife photographer. Currently I possess digital photos of lagoon habitats and biota from more than 80 visits (25 from 2010) and have been preparing an educational book on its birdlife in recent months. I have attended one of the formal stakeholder meetings in the Malibu City Hall where alternative solutions for Malibu Lagoon were presented. I have also visited and -- in some cases -- researched other coastal wetlands and salt ponds in California, Texas and Europe.

Malibu Lagoon Has Changed

My perspective on the nature of Malibu Lagoon has shifted this year prompted by a dramatic change of this coastal ecosystem and its public use:

1. The level of users has sharply increased since the opening of the increased parking lot and picnic area. Visitors are surfers, sunbathers, tourists, school and surfing classes as well as occasional birders and photographers. During warm and sunny days, there have literally been hordes of people on the beach. The parking lot was full and closed at those times.
2. The winter storms deposited an unprecedented amount of relatively high and broad beach that has lasted all summer. For the first time, a large 'bird island' was created.

3. I cannot comment on water pollutants inside the lagoon; however, it seems as if the water clarity in the side channels has recently improved compared to previous years.
4. Bird species richness and bird numbers have been very high if not exceptional in 2010. 'Bird island' saw a first ever breeding attempt by several pairs of black skimmers in August.
5. In spite of the continuous presence of often large human groups along the beach, many bird species have adapted to this feature and learned to basically disregard the human factor. As a result, we can approach plovers, sandpipers, gulls, terns, cormorants, egrets and pelicans much closer than almost anywhere else. This offers a unique opportunity for nature education at all levels (kids, families, visitors, local beach neighbors).

A Unique Ecosystem

Seen as an ecosystem, Malibu Lagoon has no equals. It is an unusually tiny park with several fragments of freshwater creek, ocean beach, brackish pond, saltwater lagoon, willow/mulefat shrubland, saltmarsh pockets, and mudflats. It is not natural; rather it is human-constructed, impacted and used. But because it has natural drivers in the form of stormwater from Malibu Creek (winter) and wave and sediment action from the Pacific it changes by season and sometimes from year to year. Part of its appeal is its changing habitat mosaic and its liberal access to human visitors.

What Should Not Be Done

It would be unwise to try to permanently control this tiny wetland or to recreate a more natural saltmarsh ecosystem. Because of its unique natural and social attributes, there is really nothing wrong with the present park design and practice. In fact, it seems optimal. The existing access trail with its bridges is of exceptional value. No other plan will provide the close interface between people and wildlife that can be observed every day. The existing problems with water quality, water circulation, alien plants, etc. are largely of an external nature, i.e. they come into the lagoon system from the outside and should be solved before entering the lagoon.

The sudden natural emergence of a sandy island in the lagoon has eliminated any need for the artificial creation of such islands. The great abundance of shorebirds on this island has shown its great ecological value at no cost to the taxpayer.

I oppose the massive disturbance and destruction of the existing habitat mosaic as planned by the design alternatives that I have seen. The mere existence of precious bond money should not become the driving factor for dismantling a thriving ecosystem that has developed since the 1983 bulldozing of the former lagoon landscape.

What Should and Can Be Done

I am quite certain that a mere *one tenth* of the bond funds may be needed for minor improvements and management processes of the lagoon. At present, however, the State

Parks do not have a shining record with respect to even minor management issues of Malibu Lagoon. Charging $12 for daily parking has not resulted in (a) clean toilet facilities, (b) removal of a huge heap of decomposing and rotting garbage and weeds near the beach entrance, (c) the prompt removal of dead pelicans and cormorants in the winter (10-20 carcasses lying and floating around for weeks), and (d) the presence of a park/wildlife education officer during periods of peak use. It will be interesting to see if the construction/development sector of California State Parks can embrace a drastically downscaled improvement project for Malibu Lagoon.

I would certainly be available for advice and concrete recommendations following the rejection of the proposed restoration plan.

Sincerely,

Hartmut Walter

Hartmut S. Walter
Professor Emeritus
Email: hswalter@gmail.com

EXHIBIT C

ATTACHMENT TO SECOND DECLARATION OF ROY VAN DE HOEK

REPLY BRIEF IN SUPPORT OF PRELIMINARY INJUNCTION
OR, IN THE ALTERNATIVE, A STAY ORDER

WAYNE R. FERREN, JR.

Project Manager, Ecological Services

EDUCATION

- M.A., Biology, Rutgers Univ., 1978
- B.A., Geology, Rutgers Univ.,1970

AWARDS & RECOGNITIONS

- Santa Barbara Independent: Local Hero Award (1998)
- American Planning Association: Award of Merit for Carpinteria Salt Marsh Management Plan (1998)
- UCSB Staff Assembly: Citation of Excellence Award (1999)
- Southern California Wetland Recovery Project: Wetland Recovery Award (2000)
- Santa Barbara Wildlife Care Network: Wildlife Sanctuary Award (2001)
- Santa Barbara Channelkeeper Wetland Ecology Award (2002)
- Regional Water Quality Control Board, Central Coast District: Water Quality Improvement Award (2003)
- UCSB Environmental Studies Program: Community Service Award (2003)
- Santa Barbara County Board of Supervisors Resolution (2004)
- California State Assembly Resolution (2004)
- City of Carpinteria Mayoral Recognition (2004)
- American Society of Landscape Architects: National Honor Award in General Design for "Lagoon Park" (2008)
- National Wetlands Award, Conservation and Restoration Category (2009 Nominee)

EXPERIENCE

Mr. Ferren has an extensive background in biological investigation with special emphasis in restoration ecology, wetlands, and botanical resources in northeastern North America and California. His experience includes enhancement, restoration, and creation of wetland and upland habitats, recovery of special interest species, and other elements of ecological restoration as well as floristic, taxonomic, vegetation analyses; environmental impact analysis; and wetland delineations. He has provided direct oversight and in-depth participation in projects and investigations, from start to finish, including aspects of design, planning, instruction, implementation, maintenance, and long-term management. He has authored or contributed to more than 90 scientific publications, reports, and chapters; presented numerous workshops and invited lectures; and received 12 environmental awards for his work in conservation, restoration, planning, and management.

PREVIOUS WORK EXPERIENCE

Herbarium Assistant and Collections Manager, ANSP (1971 – 1978)
Curator, UCSB Herbarium (1978 – 1995)
Director, Carpinteria Salt Marsh Reserve (1987 – 2001)
Executive Director, UCSB Mus. of Syst. and Ecology (1995 – 2004)
Associate Director, UCSB Natural Reserve System (1997 – 2001)
Senior Environmental Scientist, Maser Consulting P.A. (2004 – 2007)
Assist. Project Manager, Maser Consulting P.A. (2007 – 2008)
Project Manager, Ecol. Serv., Maser Consulting P.A. (2009 -)

PUBLIC SERVICE

Editor, Madrono, A West American Journal of Botany (1985 – 1987)
City of Carpinteria Marsh-Park Steering Comm. (1988 – 2003)
President, California Botanical Society (1994 – 1997)
Board of Directors, California Botanical Society (1997 – 1999)
Land Trust for Santa Barbara County, Advisory Comm. (2000 – 2004)
Santa Barbara Creek Restoration Citizen's Adv. Comm. (2002 – 2004)
Zoning Board of Adjustment, Southampton Twp, New Jersey (2008 -)
Board of Trustees, Flora of NJ Project (2009 -)
Board of Trustees, Rancocas Conservancy (2010 -)

PROFESSIONAL AFFILIATIONS and CERTIFICATIONS

California Botanical Society
Society of Ecological Restoration
Society of Wetland Scientists
Philadelphia Botanical Club
Rutgers Univ. Wetland Delineator Certification

PUBLICATIONS, REPORTS & PROJECTS (ECOLOGICAL RESTORATION)

Maser Consulting P.A. 2011. Construction Completion Report: Parcel-A Capping and Wetlands Remediation Project, Borough of Sayreville, Middlesex County, NJ. Prepared for Sayreville Seaport Associates LLC. Prepared by Maser Consulting P.A., Red Bank, NJ. MC Project No. 05000500D.

Maser Consulting P.A. 2010. *Union County Four (4) Lakes Restoration Project Initial Scoping Report for* ***Briant Pond***. Submitted to Division of Engineering, County of Union, Scotch Plains, NJ. Submitted by Maser Consulting P.A., Red Bank, NJ. MC Project No. 08000459B.

Maser Consulting P.A. 2010. Union *County Four (4) Lakes Restoration Project Initial Scoping Report for* ***Rahway River Park Lake and Lagoon***. Submitted to Division of Engineering, County of Union, Scotch Plains, NJ. Submitted by Maser Consulting P.A., Red Bank, NJ. MC Project No. 08000459C.

Maser Consulting P.A. 2010. *Union County Four (4) Lakes Restoration Project Initial Scoping Report for* ***Nomahegan Lake***. Submitted to Division of Engineering, County of Union, Scotch Plains, NJ. Submitted by Maser Consulting P.A., Red Bank, NJ. MC Project No. 08000459D.

Maser Consulting P.A. 2009. *Union County Four (4) Lakes Restoration Project Initial Scoping Report for* ***Meisel Pond***. Submitted to Division of Engineering, County of Union, Scotch Plains, NJ. Submitted by Maser Consulting P.A., Red Bank, NJ. MC Project No. 08000459A.

Ferren, W. R. Jr. and G. DeBlasio. 2008. *Grand Canal Restoration – Non-Native Vegetation Removal Plan, City of Los Angeles, California*. Prepared for Lennar Urban and Lee Homes. Prepared by Maser Consulting, P. A., Red Bank, NJ. MC Project No. 05001547B&C.

Walker, R. and W. R. Ferren Jr. 2008. *Revised Conceptual Wetland Mitigation Plan, National Lead Redevelopment Site (Including a Comparative Functional Assessment of Wetland Resources), Borough of Sayreville, Middlesex County, New Jersey.* Prepared for O'Neill Properties, King of Prussia, PA. Prepared by Maser Consulting P. A., Red Bank, NJ. MC Project No. 05000500D. (April 2008).

Maser Consulting P.A. 2008. *Diagnostic-Feasibility Study of Centennial Lake for Rider University, Lawrenceville, NJ.* Prepared by Maser Consulting P.A., Hamilton, NJ. (December 12, 2008)

Ferren, W. R. Jr., J. C. Callaway, and J. B. Zedler. 2007. *Ballona Wetland Restoration Project: Habitat Descriptions and Candidate Ecosystem Functions for Restoration Alternatives at Ballona Wetland, Los Angeles, Californ*ia. Prepared for the Ballona Wetland Restoration Science Advisory Committee and the California State Coastal Conservancy. (Draft: June 2007).

Walker, R. and W. R. Ferren Jr. 2007. *Jumping Brook Sediment Trap Restoration Plan, Township of Neptune, Monmouth County, New Jersey*. Prepared for Jumping Brook Country Club, Cranbury, New Jersey, and the NJDEP, Bureau of Coastal & Land Use Compliance and Enforcement, Toms River, NJ. Prepared by Maser Consulting P. A., Red Bank, NJ. MC Project No. 06000028B

Ferren, W. R. Jr. 2007. *Pre-design Restoration Concept Report on the Biological Resources of Grand Canal, City of Los Angeles, California. 2007*. Prepared for PSOMAS, Los Angeles, CA. Prepared by Maser Consulting P. A., Red Bank, NJ. MC Project No. 05001547A

Walker, R. and W. R. Ferren Jr. 2006. *Habitat Construction and Year-One Monitoring Report for Spinnaker Pointe, Block 451, Lot 8, Borough of Sayreville, Middlesex County, New Jersey.* Prepared for The Matzel and Mumford Organization, Hazlet, NJ and NJDEP. Prepared by Maser Consulting P. A., Red Bank, NJ. MC Project No. 05001436A

Walker, R. and W. R. Ferren Jr. 2006. *Environmental Impact Assessment and Restoration Report, Jumping Brook Country Club, Detention Basin Failure. Township of Neptune, Monmouth County, New Jersey*. Prepared for Jumping Brook Country Club, Cranbury, New Jersey. Prepared by Maser Consulting P. A., Red Bank, NJ. MC Project No. 06000028B

Walker, R. W. and W. R. Ferren Jr. 2006. *Mitigation Monitoring Report, Year-Two: 2006, For Sanitary Sewer Replacement, Block 6, Lots 8-15, 24, & 25; Block 24, Lots 1, 13, & 14, Borough of Matawan, Monmouth County, New Jersey*. Prepared for the Borough of Matawan. Prepared by Maser Consulting P. A., Red Bank, NJ. MC Project No. MAT003.
Ormond Beach Wetland Task Force. 2006-2009. Ormond Beach Wetland Restoration Project, Ventura County, California. California State Coastal Conservancy. (Member)

Walker, R., W. R. Ferren Jr., and W. Olson. 2005. *Wetlands Restoration Monitoring Report: 2005 (Year-Three). Prepared for "La Mer", Block 449, Lots 6.1704, 10.02, 12 & 13, Borough of Sayreville, Middlesex County, New Jersey*, for Kaplan Companies, Highland Park, NJ. Prepared by Maser Consulting P. A., Red Bank, NJ. MC Project No. 99-144A

Walker, R. and W. R. Ferren Jr. 2005. *Concept Mitigation Plan, Applewood Farms, LLC. Tax Lots L03.003-4-64.1 & 103.003-4-13.11, Town of Marlborough, Ulster County, New York*. Prepared for Rieger Homes, Inc., Newburgh, NY. Prepared by Maser Consulting PA, Red Bank, NJ. (MC Project No. 03-0808A).

Ballona Wetland Restoration Science Advisory Panel. 2005-2009. *Ballona Wetland Restoration Project, Los Angles, California*. California State Coastal Conservancy. (Member)

Ferren, W. R. Jr. 2002. *Concept Environmental Enhancement Plan for Campus Lagoon Park: Phase II. University of California, Santa Barbara*. Prepared for the Manzanita Village Student Housing Project: Housing and Residential Services, UCSB.

Ferren, W. R. Jr. 2000. *Concept Environmental Enhancement Plan for Campus Lagoon Park, Phase I. University of California, Santa Barbara*. Prepared for the Manzanita Village Student Housing Project: UCSB Physical Facilities, Office of Business Services.

Ferren, W. R. Jr., D. M. Hubbard, S. Wiseman, A. K. Parikh, and N. Gale. 1998. *Review of 10 years of vernal pool restoration and creation in Santa Barbara, California*. In, C. W. Witham et al., Ecology, Conservation, and Management of Vernal Pool Ecosystems - Proceedings from a 1996 Conference. California native Plant Society, Sacramento, CA.

Ferren, W. R. Jr. 1998. *Design and Construction of the Carpinteria Salt Marsh Restoration Plan, Phase I: Ash Avenue Wetland Project* (Abstract). Southern California Academy of Sciences Annual Meeting, May 1-2, 1998. Symposium: Wetlands Restoration.

Ferren, W. R. Jr. (Project Manager). 1997. *University of California, Santa Barbara North Bluff Enhancement Project Concept Pla*n. Prepared for the UCSB Facilities Management and the Office of Budget and Planning. Museum of Systematics and Ecology, Dept. of Ecology, Evolution, and Marine Biology, UCSB.

Moffett and Nichol Engineers. 1996. *Carpinteria Salt Marsh Enhancement Project, Phase I: Ash Avenue Wetland Project*. Prepared for the City of Carpinteria. (Ferren - Client's Biologist)

Wallace, Roberts, and Todd, Landscape Architects. 1993. *University Center Lagoon Wetlands Restoration Feasibility St*udy. Prepared for the University of California, Santa Barbara. (Ferren - Project Biologist)

Walden, C. L., J. S. Sawasaki, and W. R. Ferren Jr. 1992. *Creation and monitoring of vernal pools in Del Sol Open Space and Vernal Pool Reserve, Isla Vista, California*. Proceedings of the Pacific Division, AAAS, vol 11, Part I. (Symposium Abstract: Restoration and creation of wetlands in coastal central and southern California)

Spectra Information and Communication, Inc. 1992. *San Jose Creek Restoration Plan*. Prepared for Santa Barbara Urban Creeks Council, Santa Barbara County Flood Control District, and California State Water Resources Department. (Ferren - collaborator)

Ferren W. R. Jr. and J. S. Sawasaki. 1992. *Restoration, creation, and inoculation of vernal pool habitat in Santa Barbara County, California*. Proceedings of the Pacific Division, AAAS, vol 11, Part I. (Symposium Abstract: Restoration and creation of wetlands in coastal central and southern California)

Callaway, R., C. L. Walden, and W. R. Ferren Jr. 1992. *Plant distribution and abundance in vernal pools at Ellwood Mesa and Del Sol Reserve*. in W. R. Ferren Jr. (Project Manager), Del Sol Open Space and Vernal Pool Enhancement Plan: Fifth-year Post-Implementation Environmental Monitoring Report. A Report to the Isla Vista Recreation and Park District and the County of Santa Barbara. Dept. of Biological Sciences, University of California, Santa Barbara.

Ferren, W. R. Jr. and E. Gevirtz. 1990. *Restoration and creation of vernal pools: cookbook recipes or complex science?* In, R. Schlising and D. Ikada (eds.) Vernal Pool Plants: Their Habitat and Biology. Proceedings of a Symposium Sponsored by the Botanical Society of America, AAAS, and California State University, Chico.

Ferren, W. R. Jr. and D. Pritchett. 1988. *Enhancement, Restoration, and Creation of Vernal Pools at Del Sol Open Space and Vernal Pool Reserve*. The Herbarium, Dept. of Biological Sciences, UCSB, Environmental Report No. 13.

EXHIBIT D

ATTACHMENT TO SECOND DECLARATION OF ROY VAN DE HOEK

REPLY BRIEF IN SUPPORT OF PRELIMINARY INJUNCTION
OR, IN THE ALTERNATIVE, A STAY ORDER

CURRICULUM VITAE

Robert J. van de Hoek, RC

Conservation Biologist, Wetlands Scientist
322 Culver Boulevard, Suite #317
(310) 821-9045
Los Angeles (Playa del Rey), CA 90293
royvandehoek@naturespeace.org

EDUCATION

1986 California State University at Northridge (CSUN) Baccalaureate Degree in Biological Sciences in Environmental Option, Minor in Anthropology (Focused Studies in Birds, Fish, Mammals, Ecology, Invertebrate Zoology)

1986 California State University at Northridge (CSUN) Baccalaureate Degree in Geography; Minor in Geological Sciences

1988 University of Nevada at Reno (UNR) Graduate Studies Program Training in Hydrology, Wildlife, Range Conservation

1988 California State University at Northridge (CSUN) Graduate Master Study in Geography with Emphasis in Geomorphology and Biogeography

1995 University of Nevada at Reno (UNR) Graduate Studies Program Training in Cultural Resources Management in Zooarchaeology, Archaeo. Theory

1996 County of Los Angeles Department of Parks and Recreation (LACDPR) in Environmental Education- Naturalist Docent Certificate

2005 El Camino College, Certificate in Environmental Horticultural Science (Propagation, Landscape Design, Field Entomology, Pests, Irrigation)

PROFESSIONAL EXPERIENCE

1999-present	**Wetland Scientist, Wildlife Biologist, Restoration Ecologist, Outdoor Science Educator, Environmental Tour Guide Wetlands Defense Fund and Ballona Institute Los Angeles (Playa del Rey), CA 90293**
1996-present	**Supervising Naturalist and Recreation Supervisor Los Angeles County Department of Parks and Recreation**
1989-1994	**Wildlife Biologist, Botanist, Archaeologist Bureau of Land Management, U.S. Department of Interior**
1987-1988	**Professor – Instructor in Geography and Biology Lassen Community College at Susanville, CA**
1989-1990	**Professor – Instructor in Geological Sciences Bakersfield Community College at Bakersfield, CA**
1991-1992	**Professor – Instructor in Natural History Sierra Nevada Cerro Coso Community College at Ridgecrest, CA**
1983-1988	**Hydrologic Technician and Archaeologist Modoc National Forest in U.S. Dept. of Agriculture**
1980-1982	**Land-use Field Mapper Department of Conservation, State of California**
1980-1982	**Marine Fisheries Biological Technician Biology Department, Calif. State University at Northridge**
1978-1979	**Paleontology Field Assistant Geology Department, Calif. State University at Northridge**

HONORS

1986-1992
Stanley Ross Scholarship in Geography
U.S. Dep't of Agriculture (Modoc Nat. For.) 1000 Hours Service in CRM

1993-2011
Commendation for Past President, 2009-2010, Whittier Audubon Society
Seventeen Honoraria: California Native Plant Society, Nat. Audubon Society
Commendation, City of Los Angeles – Wetland Restoration Stewardship
Commendation, California Senate – Wetland Environmental Stewardship
Commendation, California Assembly – Wetland Conservation Stewardship
Commendation, U.S. House of Rep. – Wetlands Education Stewardship
Commendation, Los Angeles County Supervisors – "Green" Stewardship

PROFESSIONAL AND CONSERVATION ASSOCIATIONS

Southern California Academy of Sciences

Southern California Botanists

The Wildlife Society

California Native Plant Society

National Audubon Society (including various chapters)

Ecological Society of America

National Arbor Foundation

Western Society of Naturalists

Society for Ecological Restoration

Association of American Geographers

California Parks and Recreation Society

California Board of Professional Recreation

Society of California Archaeology

Society of Environmental Educators

SELECTED SAMPLE OF PUBLICATIONS AND BOOKS*

1988. Biogeography of Alien Plants on the Channel Islands. Annual Conference of the Association of American Geographers, 2 pages.

1991. Carrizo Plain Birds: Checklist Guide. U.S.D.I. 2 p.

1991. Carrizo Herpetofauna: Natural History Guide. USDI. 2 p.

1994. Promotion of exotic weed establishment by endangered giant kangaroo rats (*Dipodomy ingens*), in a California grassland. Biodiversity and Conservation 3: 524-537. By P. M. Schiffman. [Note: Robert van de Hoek Acknowledgment Citation on Knowledge, Ideas, and Assistance].

1997. Wing Reduction in Island Coreopsis gigantea achenes. Madrono 44:394-395. By P. M. Schiffman. [Note: Robert van de Hoek Acknolwedgement Citation on Knowledge, Ideas, Assistance].

1997. California's Wild Gardens: A Living Legacy. Phyllis Faber, Ed. UC Press, Berkeley, California. Bakersfield Cactus (Sidebar). 171 p.

2000. Great Blue Heron Colony at Marina Del Rey. Report Prepared For California Department of Fish and Game. 78 p.

2003. Malibu Lagoon Ecology. Ballona Institute Publication #56. On-line Publication: www.naturespeace.org/malibulagoon.htm.

2004. Floristics and Ecology at Malibu Lagoon in 1959 and Implications for Restoration in 2004-2009. Wetlands Defense Fund Publication #1. 5p. On-line Publ.: www.naturespeace.org/malibu1959flora1raven.htm

2005. California's Wild Gardens: A Guide to Favorite Botanical Sites. P. Faber, Ed. UC Press, Berkeley. Bakersfield Cactus (Sidebar). 236 p.

2005. Conservation Biology, Restoration, Recovery: Ballona, Part IA. Ballona Institute Publication #71. On-Line Publication: www.naturespeace.org/abramsLA1ballona1902.htm.

2005. Conservation Research, Restoration, Recovery: Ballona, Part IIA. Ballona Institute Publication #72. On-Line Publication, www.naturespeace.org/abramsLA2ballona1903.htm.

2010. Biogeography and Ecology Notes on *Ruppia* in California: Conservation Implications and Extinction Risks of a Rare Native Plant Unfortunately Mistakenly Considered Common and Unimportant. Wetlands Defense Fund Report Publication #10. 11p.

2010. Historical Ecology Notes of Three Breeding Birds at Malibu Lagoon: Bald Eagle, California Black Rail, and Red-winged Blackbirds in 1930s-1940s. Wetlands Defense Fund Report #15. 2p.

2011. Peter Moyle and Camm Swift: Inland Fishes of Southern California. Wetlands Defense Fund Report #20. 1p.

2011. Native Breeding Birds in 2011: Malibu Lagoon, Los Angeles County, California. Wetlands Defense Fund Report #21. 2p.

2011. Wetland Native Plants at Malibu Lagoon. Wetlands Defense Report #23. 6p.

* Note: The above list is a sample of the over 100 publications I have authored, some of which I have submitted to various California State and Federal agencies in furtherance of conservation biology, ecological restoration, and endangered species protection.

January 20, 2013

Cindy Lin (WTR-2)
U.S Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin,

My name is Matthew Violette and I am a resident of the Las Virgenes Park HOA. I am writing to express my concern for the Total Maximum Daily Loads (TMDL's) being proposed for the Malibu Creek Watershed.

As a homeowner who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. Why is this matter being rushed for adoption? **Comment 39-1**
   Regulations that are hurried into place often result in poor policies and a waste of community resources. With the draft of the TMDL being released on 12/12/12 and a deadline for comments 1/23/13, this is incredibly unreasonable at best. The timing of this draft was not in the best interest of the public as the holiday season was upon us. This is simply being rushed.
2. Ratepayers have no guarantees the proposed TMDL will work. **Comment 39-2**
   The EPA states that the goals of the 2003 Nutrient TMDL have been met, but now says they are inadequate to address the continuing presence of algae. The EPA made this fining after our community has invested more than $10mm to meet the 2003 standard. In light of this, what can the EPA produce to convince the rate paying public that its 2012 proposal will be any more effective? Funding could be put to better use than an issue that has already been heavily invested in.
3. Ratepayers are the true "stakeholders" **Comment 39-3**
   While volunteerism and advocacy groups wanting to protect our environment are appreciated, we residents shoulder the responsibility for the funding of these measures. We're concerned the EPA focuses too much on recent data that supports their position and ignores data from other government agencies. We urge you to consider the data from all sources and not just the data that fuels an agenda.

For these reasons, the homeowners of the Las Virgenes Park HOA call upon the EPA to conduct a scientifically sound evaluation of the Malibu Creek Watershed with opportunities for homeowners and businesses of the region to examine the data and comment accordingly. The EPA should not proceed with adopting new, revised, or additional TMDL's until that evaluation is complete.

Sincerely,

Matthew P. Violette
5610 Las Virgenes Road #49
Calabasas, CA 91302

From: patricia mc pherson <patriciamcpherson1@verizon.net>
To: Cindy Lin/R9/USEPA/US@EPA
Cc: Hanscom Marcia <wetlandact@earthlink.net>

Date: Friday, January 25, 2013 02:53PM
Subject: Fwd: TMDL standards - Malibu

Dear Ms. Lin,

Grassroots Coalition supports the Wetlands Defense Fund and CLEAN letter regarding the TMDL adoption of standards that would reflect the new information cited below and acknowledge prior TMDL standards were based on erroneous and/or insufficient information.
Thank you for your attention to these highly important issues that we may do a better job at protecting our natural resources.
Patricia McPherson, Grassroots Coalition

Begin forwarded message:

From: Marcia Hanscom <wetlandact@earthlink.net>
Subject: TMDL standards - Malibu
Date: January 25, 2013 2:08:14 PM PST
To: lin.cindy@epa.gov
Reply-To: Marcia Hanscom <wetlandact@earthlink.net>

Dear Ms. Lin:

We urge the EPA to adopt NEW TMDL standards that are reflective of the new, current science that informs us that a great deal of the information the prior TMDL standards were based on was erroneous.

1. New DNA analysis by Berkeley Lawrence Labs concludes that much of the bacteria at Malibu Lagoon and immediately offshore at Surfrider Beach is NOT coming from human sources, nor from pinnepeds, nor from birds - but rather from other NATURAL SOURCES. As you likely know, bacteria is a one of the fundamental components of our various ecosystems. Bacteria, especially regenerative bacteria in a coastal marsh is NATURAL and, in fact, crucial for the continuance of life in that ecosystem.

Your own EPA published report from the last TMDL adopted standards stated specifically that if the bacteria was found to come from natural sources, then the standards ought to be changed to reflect those realities. For more information about the Berkeley Lawrence Labs DNA analysis, please contact the City of Malibu and the US Geological Survey - both of which have access to the tests and results. **Comment 40-1**

2. During the course of litigation over the project at Malibu Lagoon during the past two years, it was made known that the state of Malibu Lagoon was a natural state. i.e., the Ruppia - Submerged Aquatic Vegetation present in the lagoon is NATURAL and, in fact, increasingly rare. Some of the assumptions that the TMDL standards were based on presumed, incorrectly, that a higher salinty and circulation was desirable, when - in fact - the historical nature and geographical and geological features of the lagoon - tell a different story. The species themselves, like the endangered Tidewater Goby, also informs that this species has evolved to like STILL, CALM water - not highly circulated water - and this still water fosters the growth of SAV, which is serves as refugia for the Tidewater Goby and a store-house of food that the Goby requires. (see attached declarations by biologists Robert van de Hoek and Wayne Ferren.) **Comment 40-2**

3. Dr. Randall Orton from the Las Virgenes Municipal Water District has provided interesting information about the Modelo formation that is well-known to geologists in the region. The minerals that come from this formation could be supporting the higher TMDLs of phosphorous, and his research requires greater scrutiny and consideration. **Comment 40-3**

4. Finally, the historical nature of Malibu Lagoon and its environment must be taken into consideration when establishing the TMDL standards for this water body. Please review and incorporate the information within the public documents submitted by Dr. Travis Longcore, which speak to these issues. **Comment 40-4**

All of these important sources of information and scientific findings must be included in setting any TMDL standards in the future.

Thank you!

Submitted by:
Marcia Hanscom
Executive Director
Wetlands Defense Fund
protecting & restoring Wetlands ~ the Cradle of Life
322 Culver Blvd., Ste. 317
Playa del Rey, CA 90293
(310) 821-9040

&

Managing Director
CLEAN ~ Coastal Law Enforcement Action Network
enforcing laws protecting the California coast

LongcoreMalibuLagoon.pdf	**Type:** application/pdf **Name:** LongcoreMalibuLagoon.pdf

LongcoreReMalibuLagoonRevocation.pdf	**Type:** application/pdf **Name:** LongcoreReMalibuLagoonRevocation.pdf

FERREN,AUDUBON,VANDEHOEK,CLEAN-WDF.pdf	**Type:** application/pdf **Name:** FERREN,AUDUBON,VANDEHOEK,CLEAN-WDF.pdf

Roy Final Dec.pdf	**Type:** application/pdf **Name:** Roy Final Dec.pdf

W++Ferren+Dec+(Final)[1].pdf	**Type:** application/pdf **Name:** W++Ferren+Dec+(Final)[1].pdf

van de Hoek 2nd Dec.pdf	**Type:** application/pdf **Name:** van de Hoek 2nd Dec.pdf

Attachments:

LongcoreMalibuLagoon.pdf	LongcoreReMalibuLagoonRevocation.pdf	FERREN,AUDUBON,VANDEHOEK,CLEAN-WDF.pdf	Roy Final Dec.pdf
W++Ferren+Dec+(Final)[1].pdf	van de Hoek 2nd Dec.pdf		

January 22, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, Ca 90017

Dear Ms. Lin:

My name is Elizabeth Stephens and I am the President of the Calabasas Highlands Homeowners Association. I am writing to express concern for the Total Maximum Daily Loads (TMDL) being proposed for the Malibu Creek Watershed.

As homeowners we are quite concerned about any new standards that are brought forth. We as the homeowners will bear the costs for compliance through our property taxes and sewer service rates. The following are a few issues of concern.

1) The draft of the TMDL document was only released for review on December 12, 2012, with a January 23, 2013 deadline for comments. This was an unreasonable amount of time as the document contains large amounts of material and information to digest and compute during the busiest time of the year. Most organizations do not even meet during the Holiday season. All parties need to do their due diligence otherwise if there is a rush to adopt the new standards before properly examined then poor policy could result. **Comment 41-1**

2) Our Community has invested more than $10 million to meet the EPA standards of 2003 but now EPA states they are not adequate to address the continuing presence of algae. How can ratepayers be guaranteed that the proposed TMDL will be any more effective? The constant revisions for more stringent standards could prove to be extremely costly. We need a thoughtful approach especially during these difficult economic times, so again let us not rush into the adoption of these standards. Allow reasonable time to investigate. **Comment 41-2**

3) We appreciate the passion of advocacy groups (NGO) who desire to protect our environment but ultimately the residents are responsible for paying for the compliance measures they promote. Our concern is that the EPA has mainly focused on recent data compiled by NGO that supports their positions, but EPA has ignored the scientific data collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. We ask as homeowners and ratepayers that the EPA consider all the information, so that the analysis and any resulting regulations demonstrate a greater degree of scientific rigor. **Comment 41-3**

The Calabasas Highlands Homeowner Association respectfully asks that the EPA not proceed with adopting new, revised, or additional TMDLs until evaluations can be completed. We ask that the EPA conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate allowance of time given to homeowners and businesses in the region to examine the data and comment on the findings.

Sincerely,

Elizabeth Stephens

President of Calabasas Highlands HOA

23-Jan-2013
Cindy Lin
EPA

STATE BOARD NOTICE OF OPPORTUNITY TO COMMENT ON THE LOS ANGELES REGION BACTERIA TMDL

Dear Cindy,

In 2002, in response to a lawsuit by Santa Monica Baykeeper and the Natural Resources Defense Council and consent decree that set timelines for adopting Total Maximum Daily Load regulations, the LA Regional Water Quality Control Board adopted recreation bacteria standards for Santa Monica Bay in a rush. They were scheduled for reconsideration in July 2007 because the rush to come to a quick decision did not allow a stringent review of the science at the time. Also, the water sampling used to set the standards was pulled together by Heal the Bay and Santa Monica Baykeeper using methods that are no longer applicable. The Regional Board completely ignored the July 2002 obligation to review that actual 5-year water quality monitoring results and the best available science that emerged over time. Instead, they let the natural source allocations sit at rock bottom and exposed the City of Malibu and the County to the extraordinarily wasteful litigation that was recently settled by the City but not the County.

In 2004, the LA Regional Board adopted the Malibu Creek Bacteria standards and the Board was also obligated to reconsider the evidence when they reconsidered the Santa Monica Bay Bacteria TMDL.

The major failings of these 2002 and 2004 regulations:
1) They do not accurately account for natural sources of bacteria so the cities are chasing after programs and projects that cannot meet the standards because they are not controllable by the city. The fact that NGOs suggest that Malibu must sterilize its streams and scrape natural kelp and sea grasses off the beaches is in direct conflict with the Clean Water Act. Heal the Bay defines natural bacteria as pollution but the US EPA does not. The consequences of meeting the standards without protecting beach and stream ecology are long-term damage to Malibu's natural coastline. If you damage the beach ecology it interrupts resources that are needed to protect healthy offshore marine protected areas.

Whether or not there is a public health risk from natural bacteria is of potential concern for public health noticing **but it is not supposed to be used as a marker for municipal compliance for TMDL standards.** The NGOs convinced the previous Regional Board that the two regulatory tracks are one and the same because they are "more protective" but the US EPA clearly states that municipalities are not responsible for natural bacteria.

The current bacteria TMDL regulations imagine that the urban watersheds in the highly developed portions of LA County are the same as the open space and natural watersheds of the North Santa Monica Bay which almost every scientist will tell you, they are not the same when it comes to baseline sources of any constituent but especially bacteria. Even natural watersheds are not exactly comparable so the use of Arroyo Sequit watershed and Leo Carrillo Beach to set the baseline standards is not working because there are many factors that affect the abundance of natural bacteria: watershed size, whether or not the beach sampling site is prone to kelp mounding or accumulation of sea grasses, and whether the sampling site is influenced by a poorly functioning lagoon with elevated bacteria. Every one of the sites in Malibu on the HtB Beach Bummer list is very influenced by environmental conditions contributing to persistent bacteria exceedances that are not in the City of Malibu control if they are to be preserved in a natural condition. **Comment 42-1**

2) This basic problem is compounded by the fact that the LA Regional Board has refused to hold every public agency (mainly all park agencies) in a watershed equally accountable to the Clean Water Act regulations. They have the power to do so but the park agencies have asked for and been granted waivers to their own NPDES MS4 Phase 2 permits and all of the agencies are not listed as responsible jurisdictions in the adopted TMDLs.

This is triple compounded when a park agency is listed and specific tasks are required in the regulations, the Regional Board does not send Notices of Violation to the park agency and so municipalities and citizens cannot even take action to correct this very, very significant omission. For the past 10 years, the cities in this region have worked together to reduce or eliminate pollutants but cannot implement a true watershed protection plan because the park agencies refuse to participate because there are no consequences for not participating. The standards are not applied fairly to every agency that could contribute or cause exceedance of the bacteria standards. This contradicts the Clean Water Act regulations. **Comment 42-2**

3) In 2002 (Santa Monica Bay) and 2004 (Malibu Creek) with each of the two respective regulations adopted, that Regional Board included a list of regulations

that they imagined would need to be reconsidered when the bacteria TMDLs were reopened. Almost every single one of the major issues that has had unintended consequences and now has scientific proof how wrong the standards are and explain why the municipal compliance rate is little or no better than when they were adopted 10 years ago, will not be heard on June 7. Even though municipal staff in pre-meetings with Regional Board staff pointed out this serious deficiency, the municipalities were ignored and the Regional Board staff only included a limited list of items that would be reconsidered on June 7. Unless the Regional Board instructs the staff to re-notice the meeting and delays voting to allow all relevant issues and the best available science to be part of the Board's deliberation before new standards are adopted, the entire process is a failure. Comment 42-3

4) In the Santa Monica Mountains watersheds park agencies do not follow stormwater or TMDL regulations but are not held accountable, State Parks does not follow the regulations in Malibu Lagoon, State Parks allows commercial tenants to plant turf, install lights and fencing at the very edge of Topanga Creek, State Parks and the Santa Monica Mountains Conservancy pave over their parking lots right up to the edge of Topanga Creek, Solstice Creek and Corral Creek without any set back or vegetated swales to reduce pollutant contributions. The Santa Monica Mountains Conservancy installs permanent kiosks right on creek banks when there is plenty of room nearby. The Coastal Commission and the Regional Board are not doing their job. All these park amenities are development projects that remove riparian habitat and all are sites the directly contribute bacteria from dog walking in parking lots, oils, gas and greases from cars, and excessive trash and marine debris that is not managed because park agencies are not held accountable. Comment 42-4

5) The Regional Board is being asked to adopt new standards without a clear understanding of the problems that exist with the current regulations and the opportunities for solutions so that cost-effective solutions can be applied and water quality objectives can be met. This severely cripples the public process and the obligation of the Board to implement regulations that will truly improve water quality for human and aquatic life.

The worst part, is that Malibu is the City that adopts progressive regulations, has met water conservation objectives, set high energy efficiency standards, has exemplary clean water programs and projects but is the City that gets notices of violations, is set up for citizen lawsuits, and is the City that gets needlessly sued. Comment 42-5

Until park agencies are required to participate in regular water quality compliance monitoring and all the other NPDES MS4 permit requirements, it will be impossible for municipalities to meet the water quality standards.

Thank you for your consideration.
Sincerely,
Wendi Werner

Susan R. Ellis
26329 W. Plata Lane
Calabasas, CA 91302

January 16, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin,

I serve as the President of one of the homeowner associations in the Las Virgenes Metropolitan Water District and am writing to express my concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As a homeowner who will bear the costs for complying with any new standards, through property taxes and sewer service rates, I raise the following issues:

1. **Why is this matter being rushed for adoption?** Comment 43-1
Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet.

2. **Malibu Creek has unique characteristics.** Comment 43-2
It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects?

3. **What if EPA's findings are wrong again?** Comment 43-3

The unnecessary rush toward adopting a TMDL carries great risk. If the proposed TMDL is adopted, reaching the stated water quality objectives can cost hundreds of millions more beyond what has already been invested. But what happens to the rate-paying and taxpaying stakeholders if EPA's new TMDLs prove ineffective? Countless dollars will have been wasted, causing irreparable harm to the owners of homes and businesses in the region. EPA should only proceed with a TMDL when it can guarantee its regulations will produce the desired result. Anything less shows an irresponsible disregard for the ratepayers who will ultimately bear the costs of yet another failed "experiment." This is not hypothetical. As an example, since 1997, for seven months each year, Tapia's treated effluent has been prohibited from Malibu Creek. Yet, that prohibition has not resulted in quantifiable improvements in water quality. However, customers continue to be saddled with the cost for this compliance measure. As a result of these and other regulations, our sewer service costs are among the highest in the region.

For these reasons, I call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Susan R. Ellis

Susan R. Ellis

ROSS MORGAN & COMPANY, INC., AAMC®
"An Accredited Association Management Company"
Sherman Oaks Calabasas Valencia Palmdale Saugus

15315 Magnolia Boulevard, Suite 212
Sherman Oaks, CA 91403
(818) 907-6622
(323) 654-7978
(310) 271-5811
Fax (818) 907-0749

Writer's direct e-mail: tbarbarotto@rossmorganco.com

January 18, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Boulevard Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

The Lakes At Lakeview Villas Homeowners Association in Agoura Hills writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Ratepayers have no guarantees the proposed TMDL will work.** Comment 44-1
The EPA states the goals of the 2003 Nutrient TDML have been met, but now says they are not adequate to address the continuing presence of algae. EPA makes this finding after our community has invested more than $10 million to meet the 2003 standard. In light of this finding, what can EPA produce to convince the rate-paying public its 2012 proposal will be any more effective? Continual revision to more stringent TMDLs may require an agency or city to tear out infrastructure that was just constructed to meet the previous standard. "Trial and Error" is a costly and wasteful practice when it comes to projects of this magnitude, especially in these difficult economic times.

2. **Why is this matter being rushed for adoption?** Comment 44-2
Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet.

3. **Ratepayers are the true "stakeholders"** Comment 44-3
While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor.

For these reasons, the homeowners of The Lakes at Lakeview Villas Homeowners Association call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Tony Barbarotto
Community Manager
The Lakes At Lakeview Villas Homeowners Association

cc: Board of Directors

FIRST NEIGHBORHOOD
PROPERTY OWNERS ASSOCIATION

January 24, 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite #1460
Los Angeles, CA 90017

Dear Ms. Lin:

First Neighborhood Property Owners Association writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. Ratepayers have no guarantees the proposed TMDL will work.
The EPA states the goals of the 2003 Nutrient TMDL have been met, but now says they are not adequate to address the continuing presence of algae. EPA makes this finding after our community has invested more than $10 million to meet the 2003 standard. In light of this finding, what can EPA produce to convince the rate-paying public its 2012 proposal will be any more effective? Continual revision to more stringent TMDLs may require an agency or city to tear out infrastructure that was just constructed to meet the previous standard. "Trial and Error" is a costly and wasteful practice when it comes to projects of this magnitude, especially in these difficult economic times.

2. Why is this matter being rushed for adoption?
Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner association and local government entities do not meet.

Comment 45-2

Comment 45-1

31830 Village Center Road | 818-889-0632
Westlake Village, California 91361 | www.firstneighborhood.org

3. Malibu Creek has unique characteristics.

It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects?

For these reasons, the homeowners of First Neighborhood Property Owners Association call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Brad Halpern (J.M.)

Brad Halpern
President, First Neighborhood Property Owners Association

Comment 45-3

January 20, 2013

Cindy Lin
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., suite 1460
Los Angeles, CA 90017

Dear Mrs. Lin,

The Upper Terrace Homeowners' association in Westlake village is concerned about the Total Maximum Daily Loads being proposed for the Malibu Creek Watershed.

It appears that the draft TMDL document was released for review on December 12, 2012. That is not enough time to study it. Comment 46-1

Also, our homeowners association contains many single homeowners and seniors. A hike in sewer fees will impact them significantly. We are aware that the sewer fees for adjacent cities are far less than what we currently pay. Comment 46-2

The Malibu Creek has unique characteristics and it appears not appropriate to compare it to other fresh water coastal creek systems. Comment 46-3

The EPA should only proceed with a TMDL when it can guarantee its regulations will produce the desired result. It should listen to the Las Virgenes Municipal Water District as it works to inform its ratepayers. Comment 46-4

For these reasons, the homeowners of Upper Terrace Homeowners Association calls upon the EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. The EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Christine Brown

Christine Brown, President and on behalf Upper Terrace Homeowners Association
3312 Yager Way
Westlake Village, CA 91361

20 January 2013

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles CA 90017

Dear Mrs. Lin:

Las Virgenes Park Homeowners Association, Inc., writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. Why is this matter being rushed for adoption? Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet. **Comment 47-1**
2. Malibu Creek has unique characteristics. It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impair the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater streams like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Foundation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects? **Comment 47-2**
3. Ratepayers are the true "stakeholders." While the volunteerism and passion of advocacy groups (NGOs) wanting to protect our environment is appreciated, we residents shoulder the ultimate responsibility for funding the compliance measures they promote. We're concerned that EPA places an extraordinary focus on recent data compiled by NGOs that support their positions, but EPA ignores data scientifically collected by government agencies over the last four decades. These government entities must follow strict EPA standards for sample collection, laboratory testing, and personnel certification; NGOs do not. Once again, ratepayers fund those stringent and scientific government testing programs and we urge EPA to thoroughly consider that information as well, so that the analysis, and any resulting regulations, demonstrate a greater degree of scientific rigor.

Comment 47-3

For these reasons, the homeowners of Las Virgenes Park Homeowners Association call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,

Vera Hogan
5536 Las Virgenes Road Unit 127
Calabasas CA 91302

Date: 1-15-13

Cindy Lin (WTR-2)
U.S. Environmental Protection Agency
Southern California Field Office
600 Wilshire Blvd., Suite 1460
Los Angeles, CA 90017

Dear Ms. Lin:

Wagon Road Ranchos writes to express concern for the Total Maximum Daily Loads (TMDLs) being proposed for the Malibu Creek Watershed.

As homeowners who will bear the costs for complying with any new standards, through property taxes and sewer service rates, we raise the following issues:

1. **Ratepayers have no guarantees the proposed TMDL will work**. Comment 48-1
The EPA states the goals of the 2003 Nutrient TMDL have been met, but now says they are not adequate to address the continuing presence of algae. EPA makes this finding after our community has invested more than $10 million to meet the 2003 standard. In light of this finding, what can EPA produce to convince the rate-paying public its 2012 proposal will be any more effective? Continual revision to more stringent TMDLs may require an agency or city to tear out infrastructure that was just constructed to meet the previous standard. "Trial and Error" is a costly and wasteful practice when it comes to projects of this magnitude, especially in these difficult economic times

2. **Why is this matter being rushed for adoption?** Comment 48-2
Regulations that are hurried into place often result in poor policies, wasteful of community resources. In this case, the draft TMDL document was released for review on December 12, 2012, with a deadline for comments set for January 23, 2013. This is not reasonable. Accounting for time lost to weekends and the busy holiday period, the public has been given less than 30 business days to review voluminous material, at a time when most homeowner associations and local government entities do not meet.

3. **Malibu Creek has unique characteristics.** Comment 48-3
It is not appropriate to compare Malibu Creek to other fresh water coastal creek systems. Applying freshwater standards to a brackish creek does not make sense. EPA concludes that algae impairs the presence of aquatic insects but fails to recognize that freshwater insects do poorly in non-freshwater stream like Malibu Creek or for a creek that has no water at all over 25% of its length in dry weather periods. EPA should also recognize that the salt impact of the Monterey Formation in the watershed was a key reason why the water district that serves our area was formed in the first place; Malibu Creek is unsuitable as a potable water source, in part because of its salinity. Are we to believe its salinity has no impact on freshwater insects?

For these reasons, the homeowners of Wagon Road Ranchos call upon EPA to conduct a scientifically sound evaluation of the Malibu Creek watershed, with appropriate opportunities given to the homeowners and businesses of the region to examine the data and comment on the findings. EPA should not proceed with adopting new, revised, or additional TMDLs until that evaluation is complete.

Sincerely,
Colleen Holmes

Colleen Holmes
President