

Flow Science Incorporated

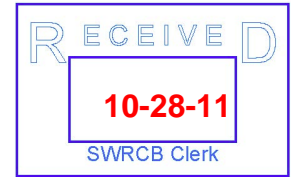
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October 28, 2011

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
P.O. Box 100, Sacramento, CA 95812-2000 (mail)
commentletters@waterboards.ca.gov



Re: Comment Letter – Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants TMDL

Dear Ms. Townsend,

On behalf of the City of Signal Hill, Flow Science is pleased to provide comments on the “Dominguez Channel and Greater Los Angeles and Long Beach Harbor Waters Toxic Pollutants Total Maximum Daily Loads” (“Harbor TMDL”).

In its comments to the Los Angeles Regional Board, the City of Signal Hill expressed its concern about technical and scientific aspects of the Harbor TMDL, about its implementation, and about the potential environmental and economic impacts that would result if the Harbor TMDL is implemented in its current form. As detailed in the attachment to this letter, the City has reviewed in detail the final Basin Plan Amendment, Staff Report and associated documents, and the Regional Board’s response to comments. We believe that the Regional Board has failed to respond to many of our concerns, and that its response in other areas is inadequate. We have provided detailed discussions, both in our original comments and in the attached response to the Regional Board’s response to comments, of why we believe that the Harbor TMDL is not scientifically defensible.

The major concerns that we have about the Harbor TMDL can be summarized as follows:

- The Regional Board added new language to the Harbor TMDL at the adoption hearing and after the close of all opportunity for public comment. The new language represents an important change in the overall TMDL, as it indicates that the targets and allocations of the Harbor TMDL may be changed at any time, and bases compliance with the TMDL on fish tissue targets that are identical to OEHHA’s Fish Contaminant Goals (FCGs). We believe that the Regional Board should have used OEHHA’s Advisory Tissue Levels (ATLs) instead of FCGs and should have solicited public comment on the proposed changes. See the attachment for greater detail.
- The Harbor TMDL is not based upon best available science. Specifically, it fails to implement the State’s Sediment Quality Objectives (SQO) Policy and instead uses Sediment Quality Guidelines (which were explicitly supplanted by the SQO Policy) as TMDL targets. Further, the modeling used to develop the TMDL makes key assumptions that are inappropriate and unsupported, and that lead to a TMDL that




is not scientifically defensible and that may not regulate the pollutant(s) that may be responsible for impairment within the Harbor.

- The Harbor TMDL assigns allocations to bed sediment, despite the fact that a TMDL is by definition "a calculation of the maximum amount of pollutant that a waterbody can receive and still meet water quality standards" (USEPA definition, 2011). Many of the pollutants regulated by the TMDL are legacy pollutants; current inputs are a very small fraction of historic loads, and the sediments contain a vast repository of these legacy pollutants. Regulating current inflows of pollutants to the Harbor waters will do almost nothing to change the mass or concentration of those pollutants that already reside within the Harbor sediments. Thus, a TMDL that regulates inflows is an ineffective and inappropriate mechanism for achieving attainment within the Harbor.
- The Regional Board has not responded to the specific concerns we raised about its CEQA analysis. See the attachment to this letter for additional detail.

For these reasons, the City of Signal Hill requests that the State Water Board remand the Harbor TMDL to the Regional Board for modification and revision. Please see also the City's legal comments, submitted under separate cover by Rutan and Tucker.

Please contact me at (626) 304-1134 if you require additional information. We thank you for the opportunity to provide these comments.

Sincerely,


Susan C. Paulsen, Ph.D., P.E.
Vice President and Senior Scientist

Comment No.	Regional Board's Restatement of Flow Science's Comment	LA RWQCB Response	FSI Response to LA RWQCB Response
40.1	<p>The Draft TMDLs use sediment quality guidelines (SQGs) to establish sediment targets and allocations, contrary to the State's Sediment Quality Objectives (SQO) policy and best available science. [See Flow Science Comment Letter in the Board Package for the rest of the comment]</p> <p>The SQG thresholds used in the Draft TMDLs (i.e., ERLs and TECs) were developed for use only as screening tools and were never intended for use as standards or regulatory endpoints. [See Flow Science Comment Letter in the Board Package for the rest of the comment]</p> <p>Recommendation: We request that the Draft TMDLs be rewritten to eliminate the use of ERLs and TECs. Rather, the Draft TMDLs should rely upon the State's SQO Policy to assess if sediment quality objectives are exceeded, and stressor identification should be performed to identify pollutant(s) responsible for any exceedance.</p>	<p>See response to Comment 20.1.</p> <p>The response to Comment 20.1 states that "the toxicity predictive ability of ERLs has been tested in the field and when several ERLs are exceeded, the predictive ability is greater. The targets do not estimate current conditions in the Harbors but represent the target chemical conditions. Because this TMDL also allows compliance to be demonstrated using the triad [SQOs], healthy sediments in the Harbors will be considered in compliance even if the ERL target is exceeded." The response states that site-specific studies can be conducted to develop new, site-specific targets.</p> <p>The response to Comment 20.1 also discussed Bight 08 sediment triad results (which were not mentioned in Flow Science's comments).</p> <p>"The Effects Range Low (ERL) values represent the levels below which adverse biological effects are not expected to occur, and therefore are the appropriate threshold for ensuring that aquatic life beneficial uses are fully supported and that impairment is eliminated. The use of ERLs... is consistent with previously adopted TMDLs in the Los Angeles Region..."</p> <p>"In the absence of full triad data which includes the assessment of toxicity and benthic communities, the ERLs are a protective predictor of toxic effects in sediment..."</p> <p>The response to Comment 20.1 also states that "sediment targets are not necessarily 'clean-up standards' for dredging or capping activities."</p>	<p>FSI Response to LA RWQCB Response</p> <p>It is unclear which portions of the lengthy response to Comment 20.1 the Board believes to be relevant to Comment 40.1, but it seems that the Board's response was essentially: 1) that SQO part 1 methodology was applied as part of an "assessment review," and there were sufficient exceedances according to that methodology to confirm impairment and to warrant the TMDL; 2) that SQGs were necessary to translate judgments of sediment impairment into the numeric targets required for a TMDL, something that SQO methodology cannot do, and 3) that compliance with the TMDL may be demonstrated by attaining SQO standards and not merely by meeting the SQG-based TMDL loads.</p> <p>These responses are inadequate for several reasons. First, although the Board undertook an "assessment review" according to SQO part 1 methodology, the Regional Board's assessment falls well short of the SQO assessment required by the State's SQO Policy. Most notably, the assessment did not use the most recent, relevant data, and stressor identification was not conducted, as discussed in greater detail below.</p> <p>Second, the Regional Board's failure to conduct the stressor identification portion of the SQO Policy means that the specific contaminants that are the subject of the TMDL may not be responsible for the alleged impairment. It is through the stressor identification process that it is established (1) that pollutant(s) are responsible for impairment, and (2) which pollutant(s) are responsible for impairment. Rather than conduct stressor identification, the Board has assumed without scientific basis that the pollutants they selected (i.e., those that exceed ERL values) are responsible for the supposed sediment impairment, but has failed to confirm that those pollutants are responsible for impairment and fails to identify other pollutants that may be responsible for impairment. For example, pyrethroid compounds have been demonstrated to cause impairment in sediments in other parts of the state. Pyrethroids have relatively long half-lives, and one, bifenthrin, is quite stable in aquatic environments (see, e.g., Fecko, 1999, <i>Environmental Fate of Bifenithrin</i>). However, the Regional Board hasn't analyzed if pyrethroids may be responsible for the impairment alleged under this TMDL, and pyrethroids are not regulated by this TMDL. Before it adopts a TMDL to address sediment impairments, the Regional Board should evaluate whether or not pyrethroids and other compounds are responsible for sediment impairment, and should assess the control of these compounds through regulations issued by the California Department of Pesticide Regulation. The TMDL as written may require unnecessary implementation measures to control other pollutants but will have failed to require controls (e.g., source controls, bans on the use of pyrethroids in affected watersheds) that could result in TMDL attainment.</p> <p>Third, the fact that compliance with the TMDL may be achieved by demonstrating that sediments meet SQO guidelines is largely beside the point. The original comment was that SQO methodology was not used in establishing impairment in the first place. Thus, the Regional Board has not used best available science either in determining impairment or in establishing controls for responsible pollutants.</p> <p>Fourth and finally, the response does not address the comment originally raised—i.e.,</p>

Comment No.	Regional Board's Restatement of Flow Science's Comment	LA RWQCB Response	FSI Response to LA RWQCB Response
40.2	<p>It appears that air deposition alone exceeds the loading capacities calculated for DDT for all but one of the water bodies regulated by the Draft TMDL, such that even if all other inputs are reduced to near zero, TMDLs would continue to be exceeded. Air deposition alone also exceeds the loading capacities for copper and zinc in the Inner Harbor area. If this is indeed the case, dredging would be required Harbor-wide on a continuous basis.</p> <p>Recommendation: <i>The assumptions regarding air deposition should be revisited, particularly the assumption that the entire pollutant load delivered to the water body by atmospheric deposition will deposit to the sediment bed.</i></p>	<p>See response to Comment 20.2.</p> <p>Response to Comment 20.2 discusses available monitoring data for "the listed pollutants in water, fish and sediments." The response also discussed the EFDC and LSPC models, stating that they were "configured and calibrated/validated using the best available data at the time of modeling," and peer review.</p> <p>Response to Comment 20.2 appears to discuss air deposition via two sentences: "Negative allocations arise from our policy decision to presume that the air deposition loads will not reduce for most pollutants. Staff has interpreted the negative allocation to be zero</p>	<p>that SQGs were never intended for use as regulatory standards or endpoints (as they are proposed to be used in the TMDL). Rather, they were developed for use only as screening tools. Thus, the Regional Board's use of them as regulatory standards is clearly contrary to their intended use as specified in the State's SQO Policy and contrary to good science. The Board's response did nothing to reply to that comment.</p> <p>The State's SQO Policy became effective when approved by USEPA on August 25, 2009. Many TMDLs within the Los Angeles Region approved prior to this date included the use of ERLs. However, as clearly stated within the SQO Policy itself, one reason the SQO Policy was adopted was because the use of a single line of evidence (LOE), such as pollutant sediment concentration, produced erroneous and misleading results; the SQO Policy was intended to correct and supersede the practice of using SQGs as regulatory endpoints. (See, for example, the State's SQO Policy at p. 7: "None of the individual LOE [lines of evidence] is sufficiently reliable when used alone to assess sediment quality impacts due to toxic pollutants. Within a given site, the LOEs applied to assess exposure... may underestimate or overestimate the risk to benthic communities and do not indicate the causality of specific chemicals...")</p> <p>The SWRCB explicitly considered and rejected the continued use of Sediment Quality Guidelines (such as ERLs) as a CEQA alternative when it adopted the SQO Policy. The SWRCB Staff Report for the SQO Policy presented citations for a number of scientific research articles, and utilized the input of a highly qualified Scientific Steering Committee and peer reviewers, in evaluating and rejecting the use of Sediment Quality Guidelines like ERLs for future use within the State (see, for example, SQO Policy Staff report, September 16, 2008, at p. 5-22). Documents produced during the SQO Policy development process and included in that record indicate that even Dr. Ed Long, the original author of ERLs and ERMs and a member of the Scientific Steering Committee for the State Water Board SQO Policy, rejected their use as regulatory endpoints.</p> <p>By contrast, the Regional Board, in its response to comments, has not provided even one citation to support its assertions that "the toxicity predictive ability of ERLs has been tested in the field" or that ERLs are "protective predictors."</p> <p>It is unclear how the Regional Board's response addresses the question raised, namely that air deposition appears to exceed loading capacities, which would imply that continuous dredging would be required for the foreseeable future, even if all other incoming loads were to be reduced to zero. Thus, even very costly and environmentally damaging implementation measures would not be expected to result in attainment.</p> <p>Further, the Regional Board's summary of our comments (and response to those comments) does not include the supplemental information found on p. A-11 of the comments. There, Flow Science provided a detailed discussion of atmospheric deposition, sediment grain size, and transport of fine-grained sediments within the Harbor. The Regional Board has not addressed these comments.</p>

Comment No.	Regional Board's Restatement of Flow Science's Comment	LA RWQCB Response	FSI Response to LA RWQCB Response
40.3	<p>The application of interim and final allocations for toxicity is inappropriate for stormwater discharges. Toxicity tests measure the responses of certain test organisms, and toxicity test results can be influenced by numerous factors other than and in addition to effluent toxicity (e.g., ionic strength (salinity) differences between sample and control). In addition, the Draft TMDLs would apply toxicity limits for chronic toxicity to stormwater discharges. However, application of chronic toxicity test methods to stormwater is unsupported by appropriate studies and data collection. It is unclear that current chronic toxicity test methods could be applied to stormwater discharges—e.g., most methods require the collection of new samples daily for eight (8) days, and most stormwater discharges persist for a much shorter time period.</p> <p>The Draft TMDLs calculate an interim limit for toxicity using "average values" from toxicity tests conducted by the Los Angeles County Department of Public Works. It is inappropriate to use the average of available test data as a measure of current performance that can be applied to single samples—rather, available data should be used to calculate an interim limit from the maximum (or upper percentile value) of individual samples.</p> <p>Finally, toxicity testing should be conducted in the receiving water, as envisioned by the monitoring requirements of the Draft TMDLs, not for individual effluent samples, as appears to be required by the interim and final allocations. Additional detail is included in Attachment A to these comments.</p> <p>Recommendation: <i>Chronic toxicity testing requirements should be removed from the Draft TMDLs</i></p>	<p>loading allowed."</p> <p>See response to Comment 19.2.</p> <p>In addition, Staff notes that most methods require the collection of water samples at a single water sampling event, followed by a test which takes 8 days and do not require <i>collections</i> for 8 days.</p> <p>Current data show water quality less than 2 TUC in addition, the fresh water interim allocation shall be implemented as a trigger requiring initiation and implementation of the TRE/TIE process as outlined in US EPA's "Understanding and Accounting for Method Variability in Whole Effluent Toxicity Applications Under the National Pollutant Discharge Elimination System Program" (2000) and current NPDES permits. See response to Comment 14.6 and 38.2.</p> <p>The freshwater interim allocation shall be implemented in accordance with US EPA, State Board and Regional Board resolutions, guidance and policy at the time of permit issuance, modification or renewal.</p> <p>Response to Comment 19.2 states, in part: "Given that short discharge conditions may also cause an adverse sub-lethal toxic effect, it is appropriate to apply chronic toxicity to adequately protect aquatic organisms during all seasons and flow conditions."</p> <p>Response to Comment 14.6 states, in part: "The established interim limits are intended to prevent degradation in water quality from the in current condition [sic]. When the TMDL is adopted and approved by the Regional Board, OAL, State Board, EPA, and becomes effective, the interim limits will be incorporated into the appropriate permits and become enforceable. The Staff Report and BPA have been revised to clarify that the interim toxicity WLA shall be implemented as a trigger requiring additional evaluation (e.g., Toxicity Identification Evaluations)."</p>	<p>The Regional Board's response to Comment 40.3 is inadequate for several reasons. First, EPA's guidance (see, e.g., USEPA's Toxic Support Document for Water Quality-Based Toxics Control, 1991, at p. C-1, or USEPA's short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms, 4th edition, 2002) assumes that either daily collection or sample collection on Test Days 1, 3, and 5 will be undertaken for 8-day chronic toxicity tests. We find no reference suggesting that a single sample can be used for the entirety of an 8-day chronic test.</p> <p>Indeed, toxicity tests are intended to quantify the effects that result from an exposure of a specified frequency, magnitude, and duration (see USEPA, 1991, Technical Support Document for Water Quality-based Toxics Control). Although it is possible to assess chronic toxicity by artificially extending the exposure period (e.g., by assuming that a short-duration stormwater exposure will last for 8 days by artificially creating that condition within a laboratory), that test result would have no toxicological relevance to condition(s) that may actually occur in the environment. Thus, it is inaccurate and inappropriate to suggest that short-duration discharge conditions (e.g., a one- or two-day exposure that would be typical of storm events) may cause an adverse, sub-lethal effect as measured during an eight-day chronic toxicity test.</p> <p>Second, the response to Comment 14.6 indicates that "interim limits will be incorporated into the appropriate permits and become enforceable," which implies that they will be inserted into permits as effluent limitations. Use as triggers for additional TIE/TRE testing, and not as numeric effluent limitations, would be appropriate, and we would request that the SWRCB state clearly that chronic toxicity limits shall not be used as effluent limitations.</p> <p>Third, the Regional Board's assertion that current data show Harbor toxicity to be less than 2 TUC is beside the point. It appears from the response to comment and from the TMDL itself that "recent toxicity data for the Dominguez Channel" were collected by the Los Angeles County Department of Public Works, we believe that these are receiving water, not effluent, samples. Thus, application of receiving water sample results to justify a target or limitation that is to be applied to effluent samples is inappropriate. Further, it is inappropriate to calculate an average value of multiple receiving water sample results, and apply the result of that calculation as a never-to-be-exceeded limit for individual effluent samples. Flow Science's original comment was that the method of determining the interim toxicity limit as an average was flawed insofar as the Board intends to compare individual, non-averaged samples to the limit. The fact that existing Harbor toxicity may be lower than this scientifically flawed limit does not address the fact that the limit remains flawed.</p> <p>Flow Science's comments also included technical and scientific reasons why chronic toxicity tests should not be applied as effluent limitations for stormwater discharges (e.g., that differences in ionic strength can influence toxicity test results—see p. A-12</p>

Comment No.	Regional Board's Restatement of Flow Science's Comment	LA RWQCB Response	FSI Response to LA RWQCB Response
40.4	<p>The allocations of the Draft TMDLs were derived using a combination of watershed modeling (using the LSPC model) and hydrodynamic modeling of the Harbor Waters (using the EFDC model). However, the model predictions have only marginal agreement with observations, some major assumptions made for the purposes of modeling are flawed, and the modeling was used inappropriately in developing the allocations of the Draft TMDLs. Limited data availability and poor model performance lead us to question the utility and accuracy of the model results used to formulate the Draft TMDLs. [See Flow Science Comment Letter in the Board Package for the rest of the comment]</p> <p>Recommendation: <i>The TMDL load and waste load allocations should be revised to account for the fact that the majority of the pollutant load to the Harbor passes through the Harbor and fails to deposit to Harbor sediments. Further, load allocations should not be assigned for bed sediments, and more realistic assumptions should be made regarding the fraction of pollutants from air deposition that will be carried into the bed sediments. The allocations of the TMDL should be revised upward accordingly</i></p>	<p>See response to Comment 19.6. Based on the limited amount of data, the existing calibration and validation are sufficient for TMDL calculations. In addition, the simulated values used for TMDL or existing loading rate calculations were annual averages. Given that the model is in the range of observed values and averages are likely similar, the model is being appropriately used to determine loading estimates.</p> <p>See response to Comment 23.6a(iv), Comment 23.6a(iii), and Comment 19.1.</p> <p>The response to Comment 19.6 deals with watershed modeling. The response to Comment 23.6a(iv) states that sediment and associated pollutant loads can be transported both into and out of the Harbor within the model.</p> <p>The response to Comment 23.6a(iii) states in its entirety that "Sediment is a source of pollutant exposure to benthic organisms as well as a diffusive source of aqueous pollutants to aquatic life in the water column. Allocations are assigned to pollutant sources, it is appropriate to assign allocation to bed sediments."</p> <p>Finally, the response to Comment 19.1 deals with air deposition, and states that air deposition is handled in this TMDL in the same way it has been handled in other TMDLs, and Regional Board staff agrees that source control may be an option for addressing pollutant contributions from air deposition.</p>	<p>The Regional Board's response to Comment 40.4 seems to assert that the best modeling and TMDL calculation job possible has been done with the few calibration and validation data available. The response also acknowledges that the modeling allows sediment and associated pollutants to be transported both into and out of the Harbor.</p> <p>These responses miss the point of Flow Science's comments. For example, Flow Science stated that the allocations (not the modeling) were calculated without considering the flux of sediment and associated pollutants out of the Harbor. In fact, Flow Science produced figures and calculations based on life model results that clearly show that the vast majority of potential pollutant loadings from the watershed are carried through and beyond the Harbor. However, the allocations that were calculated (ostensibly from the model results) did not include this through-Harbor flux, and thus are far lower than necessary.</p> <p>More importantly, Regional Board staff assert that it is appropriate to assign allocations to the sediments themselves, as the sediments can be a source of pollutants to the water column. It is undoubtedly true that the sediments can serve as a source of pollutants to the water column, and this was likely included in the modeling. However, the sediments are already present in the Harbor, and thus cannot be regarded as a load to the Harbor. In other words, there is no way to regulate the inflows of pollutants to the Harbor such that the flux of pollutant from the sediment to the water column changes in any significant way. In fact, the flux of pollutant from the sediment to the water column is almost certainly largely independent of the pollutant loads flowing from the watershed to the Harbor.</p> <p>As noted in the Flow Science comments, it is in fact not clear what the load and waste load allocations actually represent. See footnote 1 on p. 5 of Flow Science's comment letter—it is unclear if the WLAs for MS4 discharges represent the flux of pollutants from the watershed to the receiving water, as would be typical, or if the WLAs for MS4 discharges instead only that portion of the MS4 discharge that actually settles to the sediment bed. The response to Comment 21.3 appears to indicate that the WLA for MS4 discharges represents "the allowable settleable load," and that no WLAs for the total load from the MS4 are provided within the TMDL. The Regional Board's response to Comment 40.4 does not address this concern.</p> <p>The Regional Board's response to comments also asserts that "simulated metals loads were generally in the range of observed loads," and that similar modeling had been used in other TMDLs, leaving the impression that calibration/validation results were acceptable. However, Flow Science's comments (see pp. A-20 through A-27) provided specific examples from the model reports of instances where modeled results were greatly different from measurements. For example:</p>

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40.5	<p>The method used to calculate load and waste load allocations from the loading capacity is flawed. [See Flow Science Comment Letter in the Board Package for the rest of the comment]</p> <p>This calculation method penalizes <i>de minimus</i> dischargers to water bodies- i.e., dischargers are required to reduce their loadings to water bodies to near zero levels even when model results indicate that their discharges have no effect on bed sediment concentrations, and when continued discharge at current levels would result in an identical outcome (i.e., no change in bed sediment pollutant concentrations). For example, in Cabrillo Marina, bed sediment concentrations are simulated to remain at about 235 mg/kg copper whether upland sources are held at existing levels or reduced to zero, but the WLs for MS4</p>	<p>All pollutant sources, regardless of quantity, receive allocations. CWA does not state that <i>de minimus</i> dischargers should not subject to TMDLs nor NPDES regulations.</p> <p>Commenter's choice of selecting Cabrillo Marina is example of selecting a unique waterbody (within context of all waterbodies addressed by these TMDLs) and unique pollutant sources and contributions (sediment levels appear not to be significantly influenced by stormwater inputs).</p> <p>Staff disagree with comment the model is flawed. For Cabrillo Marina, if the model suggests there is "so much pollutant mass is already resident in the receiving water bed sediments and is not the result of direct inflows from the watershed" then this indicates</p>	<ul style="list-style-type: none"> Modeled estimates of pollutant concentrations greatly exceeded (by an order of magnitude or more) the detection limits for those pollutants in inflows. Thus, if inflows really exhibited the pollutant concentrations predicted by the model, they should have been measured. But pollutant concentrations of DDT and PCBs have consistently been below detection limits. The only reasonable conclusion is that the model results grossly over-predict loadings of these pollutants to the Harbor. Flow Science's comments indicated that, for metals, "model predictions only marginally resemble the observations for the single storm event used in the analysis," and the "model appears to overestimate TSS concentrations in runoff from the Pier A watershed quite dramatically." Flow Science's comments included figures and calculations from the model reports in support of these comments. Flow Science asserted in 2006 that the watershed models had performed poorly in past TMDL analyses and were "inadequate for establishing fair and accurate waste load allocations." The Regional Board's response to those comments stated that the models were not, in fact, used to establish TMDL allocations. See Flow Science's comments for further detail. The Regional Board did not respond to these specific assertions in its response to comments at all. <p>The Regional Board also noted that the models had been peer reviewed. However, many of the peer review comments were not favorable. For example, peer reviewers noted that "The lack of transparency in the TMDL document with regards to the relatively poor calibration of the model is not acceptable scientific practice," "The description of methods [to calculate allocations] is quite vague, and thus hard to evaluate whether these critical calculations are scientifically sound..." and "I am not able to provide a firm conclusion about the validity of the final results." It does not appear that the Regional Board made any significant changes to the Staff Report or calculations of the TMDL in response to the concerns of peer reviewers.</p> <p>The Regional Board's response to Comment 40.5 is inadequate for several reasons. First, it appears that the Regional Board misunderstood the comments. The response to comments was off point because the comment did not suggest that <i>de minimus</i> dischargers should be excused entirely from TMDLs or NPDES regulations, and did not assert that the modeling itself was flawed. Rather, the comment suggested that the methodology used to calculate allocations from model results was flawed, and that such <i>de minimus</i> dischargers should bear a burden as a result of the TMDL that is proportional to the extent to which they contribute to sediment contamination. It is fundamentally unfair to require MS4 dischargers to bear the significant burden of completely eliminating their discharges when their contribution to the supposed problem is negligible; yet, this is exactly what the TMDL requires MS4 dischargers to do because of the flawed methodology used to calculate allocations. The Board response does nothing to address this point.</p>

Comment No.	Regional Board's Restatement of Flow Science's Comment	LA RWQCB Response	FSI Response to LA RWQCB Response
40.6	<p>discharges to Cabrillo Marina nonetheless require a near total reduction of pollutant loads. The problem with the calculation is that the "% difference" calculated from the two model runs has no relationship to the loading capacity of the bed sediment, because so much pollutant mass is already resident in the receiving water bed sediments and is not the result of direct inflows from the watershed.</p> <p>Recommendation: <i>The City requests that the Regional Board and USEPA revisit and recalculate load and waste load allocations using an appropriate methodology.</i></p>	<p>prioritized implementation would focus on minimizing pollutant sources in sediment, yet it does not relieve the MSA discharges of reducing pollutant loading. If, in future, more monitoring data is available for enhanced model calibration, then this will help clarify the relative contributions from different sources.</p>	<p>Second, it is not clear what the Regional Board means by calling Cabrillo Marina a "unique waterbody." It appears that Regional Board staff believes Cabrillo Marina to be unique because the "no upland sources" modeling shows that inflows are negligible contributors to sediment pollutant concentrations within this water body. However, for copper, upland sources appear to be responsible for less than a 1% contribution to the sediment pollutant load in five of eleven modeled water bodies; for DDT, upland sources appear to be responsible for less than 1% of loads in six of eleven modeled water bodies, and for less than 5% of loads in ten of eleven modeled water bodies (see Tetra Tech memo in Appendix III to the Staff Report). Thus, Cabrillo Marina was used as an example but is hardly unique, and this example points out a significant flaw with the calculated load and wasteload allocations within the TMDL as a whole. The Board's response does not address the flaws with the calculation methodology used to derive allocations.</p>
40.7	<p>As noted above, model-estimated sediment concentrations for the "no upland scenario" were found in many cases to exceed the Draft TMDL targets, indicating that even if all upland contaminant inputs are completely eliminated, the Draft TMDLs would continue to be exceeded. Because pollutants already present in bed sediments appear to be the main cause of exceedances of Draft TMDL targets (e.g., Tetra Tech notes that "DDT bed sediment contamination is predominantly a legacy issue and upland sources appear to be contributing loads of sediment that are cleaner than what is currently in bed sediments...suggesting that sediment remediation is required in each [water body] zone to achieve sediment targets"), it appears that a TMDL, which regulates loads to a water body, is not a suitable regulatory vehicle for addressing these supposed sediment impairments.</p> <p>Recommendation: <i>Pollutants present in the Harbor primarily as a result of legacy (historic) discharges, and for which current inputs are de minimus, should be eliminated from the Draft TMDLs and regulated through other means. These pollutants include DDT, PCBs, and PAHs.</i></p>	<p>See response to Comment 23.6a(i), Comment 23.6a(ii), and Comment 23.6a(iii).</p> <p>The response to Comment 23.6a(f) states that "dischargers are not being penalized as they have been identified as a source of pollutant loading and are therefore responsible to reduce their loadings. Dischargers have been assigned a proportion of the loading capacity consistent with the proportion of pollutant they are discharging during existing conditions."</p> <p>The response to Comment 23.6a(ii) states, "These additional exceedances are expected to be addressed through the load allocations for aerial deposition and existing bed sediments."</p> <p>The response to Comment 23.6a(iii) states, "Sediment is a source of pollutant exposure to benthic organisms as well as a diffusive source of aqueous pollutants to aquatic life in the water column. Allocations are assigned to pollutant sources, it is appropriate to assign allocation to bed sediments."</p>	<p>The Regional Board's response to Comment 40.6 is inadequate for several reasons. First, the Board's response to Comment 23.6a(f) that dischargers "have been identified as a source of pollutant loading and are therefore responsible to reduce their loadings," is simply false. As noted throughout Flow Science's comments, many pollutants (including DDT and PCBs) are below detection levels in inflows; only by the erroneous assignment of bed sediment pollutant concentrations to inflows (a demonstrably false modeling choice) are inflows found to contribute to bed sediment pollutant concentrations today. Contrary to the Regional Board's response, the TMDL does not "assign" a proportion of the loading capacity consistent with the proportion they are discharging during conditions." Rather, it assigns a proportion of the loading capacity relative to the modeled contribution of current sources to bed sediment pollutant concentrations; this calculation is not related to discharges during current conditions, because, especially for DDT and PCBs, discharges during current conditions were modeled by assigning pollutant concentrations from bed sediments to inflows. The point of Comment 40.6 is to suggest that, according to the Board's own modeling, dischargers are not discharging quantities of DDT, PCBs, or PAHs that have any significant impact at all on sediment concentrations in the Harbor. As such they are not a source of pollutant loading for these constituents.</p> <p>Second, the Board's response to Comment 23.6a(ii) that "These additional exceedances [that occur even without upland sources of pollutants] are expected to be addressed through the load allocations for aerial deposition and existing bed sediments," is irrelevant to Comment 40.6. If upland dischargers contribute no significant quantities of DDT, PCBs, and PAHs to the Harbor, reducing their loadings will have no impact within the Harbor. Whether other sources (aerial deposition, bed sediments) are regulated is irrelevant to the statement that upland dischargers contribute almost nothing to bed sediment pollutant concentrations.</p> <p>Third, the Regional Board's response to Comment 23.6a(iii), which discussed allocations for bed sediments, is irrelevant to Comment 40.6.</p>
40.7	<p>Concentrations (and loadings) of legacy pollutants (e.g., DDT,</p>	<p>See response to Comment 23.6b.</p>	<p>The Regional Board response to Comment 40.7 is inadequate for at least two reasons.</p>

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40.8	<p>PCBs and chlordane) in stormwater were estimated by assuming that concentrations in the top five centimeters of receiving water (Harbor) bed sediment were representative of present-day stormwater concentrations. Such assumptions are flawed, and the calculated watershed pollutant loadings very likely over-represent the actual loadings. In fact, if the assumption held, then concentrations of these pollutants would have been present above detection levels in river measurements. However, river and stream measurements of these pollutants are consistently below detection levels.</p> <p>Recommendation: Modeling should be revised to more properly estimate concentrations of pollutants on sediments delivered to (and through) the Harbor from the upstream watersheds. If necessary, additional measurements should be made during the TMDL development process, prior to TMDL adoption, to allow these important corrections to be made.</p>	<p>The TMDL modeling incorporated the best available data and information at the time the modeling was conducted, which is consistent with TMDL requirements. It was not possible, nor required, to collect additional data during the study period.</p> <p>The response to Comment 23.6b states: "DDT and PCB loadings are incorporated in the model based on their association with sediment. New loading of DDT and PCBs may not be occurring in the watershed; however, the sediment does contain historic loads of these pollutants that are being washed into the MS4, rivers, and receiving waters during rain events. Loads associated with these events are not quantified in the TMDL. While certain pollutants may be non-detectable in water, detectable concentrations are observed on sediment. The TMDL incorporates the sediment-associated loads of the DDT and PCBs based on the best available data."</p>	<p>As noted throughout our comments, the Regional Board has provided no data supporting the contention that the upland sources or inflowing rivers or tributaries are contributing to current loads. In fact, they acknowledge that pollutant concentrations in water samples collected from inflowing streams are non-detect for legacy pollutants. Only in the modeling, when the Harbor bed sediment pollutant concentrations are artificially "assigned" to inflows, is a current load hypothesized to occur. As noted in the response to Comment 23.6b, [red] loads associated with these events are not quantified in the TMDL, and we are aware of no measurements that would indicate that this loading is a significant source of sediments under current conditions.</p> <p>There is clearly a significant difference of opinion with regard to the TMDL modeling. Regional Board staff assert that "the best available data and information at the time the modeling was conducted" were incorporated into the modeling effort. As is voiced throughout our comments, just because the best available data were used does not mean that the modeling results are scientifically defensible. The point of Comment 40.9 is that the modeling of pollutant concentrations in inflows is <u>not</u> scientifically defensible because the "best available data," as employed by the Regional Board, were inadequate for the task.</p> <p>Further, even if all parties agreed that the modeling incorporated best available information and produced scientifically defensible results (and we do not), we disagree with the methods used to calculate allocations from the model results (which was a separate exercise from the modeling itself).</p>
<p>The ERDC modeling erroneously assumed that pollutant concentrations are uniform with depth within the sediment column. However, it is likely that the highest concentrations of legacy pollutants such as DDT and PCBs are present at depth within the sediments, since their manufacture and use peaked long ago. This assumption has several important implications.</p> <p>First, model results will be inaccurate if pollutant concentrations within the bed are not represented correctly within the model.</p> <p>Second, it is likely that bioturbation (sediment movement by biota resident in the sediment bed), pore water diffusion, and other processes transport higher concentrations of these pollutants from depth to the surface sediment layers. This would mean that river and stream contributions are not responsible for the presence of pollutants at the sediment surface (see prior point).</p> <p>Finally, remedial measures such as dredging are likely to expose and redistribute higher concentrations present at depth, increasing environmental damage compared to current, baseline conditions.</p> <p>Recommendation: Data from sediment cores should be used to</p>	<p>See response to Comment 23.6b and Comment 23.6c.</p> <p>Data from sediment cores will prove useful when considering remediation activities such as dredging and can be collected during implementation of the TMDLs.</p> <p>The response to Comment 23.6b states: "DDT and PCB loadings are incorporated in the model based on their association with sediment. New loading of DDT and PCBs may not be occurring in the watershed; however, the sediment does contain historic loads of these pollutants that are being washed into the MS4, rivers, and receiving waters during rain events. Loads associated with these events are not quantified in the TMDL. While certain pollutants may be non-detectable in water, detectable concentrations are observed on sediment. The TMDL incorporates the sediment-associated loads of the DDT and PCBs based on the best available data."</p> <p>The response to Comment 23.6c states: "Detailed data throughout the harbors were not available to incorporate depth-varying initial DDT concentrations. The modeled sediment concentrations do vary with depth over the course of the simulation period as new watershed</p>	<p>The Regional Board's response to Comment 40.8 fails to address the three main points of the comment: first, that the assumption that pollutant concentrations within the sediment bed are uniform is a gross oversimplification; second, that the higher pollutant concentrations at depth within the sediment may materially affect surface concentrations and remediation methods, depths, and extent; and third, that surface concentrations are likely the result of historic discharges of higher concentrations of pollutants, not the result of current-day inflows. See also our comments on the response to Comment 40.7. The Board's response has not addressed these points.</p> <p>Finally, the Regional Board's claim that sediment core sampling can be deferred until consideration of remediation activities (such as dredging) misses the point of the comment that, in fact, information about the distribution of contaminants in the sediment will have significant effects on the modeling results used to establish the TMDLs. As noted in the comment, if the contaminant distribution assumed in the model is incorrect (as it surely is since a uniform distribution was assumed), then overall model results will be incorrect, thereby undermining the scientific defensibility of the TMDLs supported by the modeling.</p>	

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40.9	<p>characterize pollutant concentrations within the sediment column, and new modeling should be conducted to utilize this information to establish TMDL targets and allocations and to revise estimates of current river loadings. If not available, sediment cores should be collected and characterized prior to adoption of the Draft TMDLs.</p> <p>Harbor modeling was not calibrated or validated for wet weather conditions. The sensitivity analysis that was performed using the model to evaluate the impacts of key model assumptions, and the impacts of proposed management actions, was conducted for the dry weather condition. The dry weather sensitivity analysis found that model results were relatively insensitive to open boundary condition concentrations and upstream watershed loads. However, LSPC model results show that daily pollutant loads are several orders of magnitude higher during wet weather conditions than during dry weather conditions. Thus, it is unsurprising that adjusting dry weather loading rates has relatively little impact on sediment concentrations. Most important, it appears that the model was not calibrated or validated for the wet weather conditions that deliver the bulk of sediment and associated pollutants to the Harbor. Given the assumptions detailed above and those that were made for the wet weather condition, we have little confidence in the model results.</p> <p>Recommendation: Additional data collection should be undertaken before the TMDLs are adopted to measure sediment and pollutant concentrations and loadings for the critical wet weather condition. Model assumptions should be revised to be consistent with the observations, and both the LSPC and EFDC models should be re-run with revised, realistic assumptions.</p>	<p>loadings are incorporated and taking into account the influences of other hydrodynamic processes along with porewater diffusion between the sediment bed surface layer, the overlying water, and the bed layer just below the surface layer. Ultimately, the TMDL incorporates the sediment-associated loads of the DDT and PCBs based on the best available data.</p> <p>"Before dredging activities are conducted, monitoring should be performed to confirm the depth of dredging required as well as the specific area (existing loads in the TMDL) are average conditions throughout the receiving water and specific areas with the highest concentrations should be identified that may be extremely influential on the average receiving water concentration[].".</p> <p>See response to Comment 23.6d. The TMDL modeling incorporated the best available data and information at the time the modeling was conducted, which is consistent with TMDL requirements. It was not possible, nor required, to collect additional data during the study period. The assumptions used in the TMDL models were appropriate and consistent with other TMDLs in the region given the available data and information.</p> <p>The response to Comment 23.6d states: "The watershed pollutant loading estimates were based on the best available data, which were generally for dry conditions. These values could be refined in the future if new data, including storm event data within the Harbor waters, become available.</p> <p>"As noted above in the response to Comment 23.6a(iv), the existing load and TMDL calculations did consider transport of sediment and DDT out of the Harbor. This fact will be clarified in the TMDL report."</p>	<p>The Regional Board's response to Comment 40.9 is inadequate. As has been voiced several times above, just because the best available data was used does not mean that the modeling results are scientifically defensible. The point of Comment 40.9 is that the results of the modeling for wet weather are not scientifically defensible because the best available data were inadequate for the task.</p>
40.10	<p>Model calibration and validation approaches and model performance assessments appear to be based on visual comparisons and cursory, qualitative assessments. Model predictions of in-stream pollutant concentrations (based on the LSPC model) and water column and bed sediment pollutant concentrations (based on the EFDC model) have limited resemblance to the observations. Despite their poor performance,</p>	<p>The TMDL modeling incorporated the best available data and information at the time the modeling was conducted, which is consistent with TMDL requirements. The watershed modeling utilized a regional modeling approach that has been developed as a cost-effective strategy to complete TMDLs in areas with limited data. Based on the limited amount of data, the existing calibration and validation are sufficient for TMDL calculations. In addition, the</p>	<p>There is clearly a significant difference of opinion with regard to the TMDL modeling. As has been voiced several times above, just because the "best available data" were used does not mean that the modeling results are scientifically defensible. The point of Comment 40.10 is that the modeling validation, particularly for the wet weather condition, was not scientifically defensible because the best available data were inadequate for the task.</p>

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	<p>the models and their predictions were deemed adequate and were used in developing the allocations of the Draft TMDLs.</p> <p>Recommendation: <i>Consistent with the comments detailed above, key model assumptions should be revised, and model calibration and validation should be performed in a more quantitative manner, particularly for the wet weather condition and to compare modeled bed sediment pollutant concentrations to measured values.</i></p>	<p>simulated values used for TMDL or existing loading rate calculations were annual averages. Given that the model is in the range of observed values and averages are likely similar, the model is being appropriately used to determine loading estimates. See also response to Comment 19.6.</p> <p>Visual comparison is a common approach for evaluating model results as it provides an indication of whether the model is predicting the general magnitude and timing of flow as well as pollutant concentrations and loads. This type of comparison was used as well as some simple comparative statistics in tabular format, which is consistent with many other TMDLs in the region and nationally.</p>	<p>The Board's response to Comment 40.11 and the modifications to the TMDL are unclear.</p> <p>Specifically, the City of Signal Hill is included as part of the "Greater Los Angeles and Long Beach Harbor Waters MS4 Permits", and as part of the "Los Angeles River Estuary Subgroup for bed sediment and fish."</p> <p>Table 7-40.2 of the final Basin Plan amendment (at pp. 37-38) includes the Implementation Schedule for the TMDL. The "Los Angeles River Estuary Subgroup for bed sediment and fish" is not listed in this table at all. Item 5 in this table requires responsible parties, including the "Greater Harbors Responsible Parties," to submit "an Implementation Plan and Contaminated Sediment Management Plan (CSMP)." However, language found at p. 31 of the final Basin Plan amendment reads as follows: "To meet necessary reductions in sediment bed loads, a Sediment Management Plan shall be developed by the dischargers assigned a sediment bed load LA, the Cities of Los Angeles and Long Beach and the State Lands Commission."</p> <p>Thus, it is not clear what the responsibilities of the City of Signal Hill (and other entities within the "Los Angeles River Estuary Subgroup for bed sediment and fish") truly are, or how the TMDL requirements will be implemented via NPDES or other permits or actions.</p>
40.11	<p>The Draft TMDLs indicate that during Phase I of the implementation, submission of an Implementation Plan and a contaminated Sediment Management Plan is required of all parties other than the Los Angeles and San Gabriel River responsible parties; for these two groups of responsible parties, only an Implementation Plan is required. In some parts of the Draft TMDLs (e.g., bottom of p. 28 of Attachment A to Resolution No. RI 1-XXX), it appears that the Cities of Los Angeles and Long Beach (and their ports) and the California State Lands Commission would be responsible for the development and implementation of Sediment Management Plans. In other portions of the Draft TMDLs (e.g., at p. 32 of Attachment A to Resolution No. RI 1-XXX), the development and implementation of Sediment Management Plans is assigned to "responsible parties," which are identified to include several individual MS4 permittees. The City of Signal Hill strenuously objects to being named a "responsible party" for the purposes of development and implementation of Sediment Management Plans.</p> <p>Recommendation: <i>The City of Signal Hill requests that the Draft TMDLs be modified to state that the City is not a "responsible party" for the purpose of development and implementation of Sediment Management Plans.</i></p>	<p>The Cities of Los Angeles and Long Beach (and their ports) and the California State Lands Commission are responsible for the bed sediment allocations and the development and implementation of Sediment Management Plans in the Harbor Waters.</p> <p>The Basin Plan Amendment has been clarified to include a Los Angeles River Estuary Subgroup for bed sediment and fish which includes Signal Hill.</p>	<p>As noted in the response to Comment 40.3, the response to Comment 14.6 appears to indicate that chronic toxicity allocations will be implemented in NPDES permits as numeric effluent limitations. If this was not the Regional Board's intent, this should be clearly stated by the SWRCB if it approves the TMDL, or the TMDL should be remanded to the Regional Board for clarification.</p> <p>The manner in which the WLA will be divided among permittees (by land area, according to the Regional Board's response) appears to ignore an essential fact: i.e., the MS4 WLAs that are included in the TMDL are for that portion of the watershed</p>
40.12	<p>The Draft TMDLs do not appear to contain information to indicate how the TMDL requirements would be implemented in permits. Although the Draft TMDLs appear to indicate that implementation in MS4 permits would occur over a 20-year period, it is unclear whether or not the permits would include interim and/or final numeric effluent limitations for concentrations in the water column, numeric effluent limitations for bedded sediment, or numeric effluent limits for pollutants associated with sediments that may be discharged in stormwater or urban runoff. It</p>	<p>The Basin Plan Amendment has been clarified in several respects: the fresh water interim allocation shall be implemented as a trigger requiring initiation of TIES; additional flexibility due to additional methods of compliance for interim and final sediment allocations; a clarification that individual mass-based WLAs for an individual MS4 Permittee will be calculated based on its share, on an area basis, of the mass-based WLA or other approved approach available at the time final mass-based WLAs are in effect and incorporated into the permit.</p>	<p>As noted in the response to Comment 40.3, the response to Comment 14.6 appears to indicate that chronic toxicity allocations will be implemented in NPDES permits as numeric effluent limitations. If this was not the Regional Board's intent, this should be clearly stated by the SWRCB if it approves the TMDL, or the TMDL should be remanded to the Regional Board for clarification.</p> <p>The manner in which the WLA will be divided among permittees (by land area, according to the Regional Board's response) appears to ignore an essential fact: i.e., the MS4 WLAs that are included in the TMDL are for that portion of the watershed</p>

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	<p>is particularly unclear how allocations that are expressed in terms of kg/yr for bed sediments and in terms of mg/kg dry sediment could be implemented within NPDES permits, although it appears that monitoring would require the collection, separation, and analysis of suspended sediment material, which is technically very challenging. Without additional clarification, it is impossible to understand or to comment upon the impacts to Signal Hill, or to plan for or implement the Draft TMDLs. Further, and as detailed in the Attachment to this letter, the City believes that it is infeasible to establish numeric effluent limitations for MS4 discharges based on the Draft TMDL.</p> <p>Recommendation: The Draft TMDLs should be revised to make clear that the waste load allocations of the Draft TMDLs will not be incorporated into MS4 permits as numeric effluent limitations, but that the permits will be consistent with the assumptions and requirements of the waste load allocations.</p>	<p>The exact method of including the WLA into the NPDES permits is not determined by this TMDL, but will be based on the administrative record for the permit at the time. The final WLA must be met at the end of the implementation schedule; staff anticipates several iterations of the discharger permits during the TMDL implementation period.</p>	<p>load that actually settles to the Harbor sediments (see also discussion associated with Comment 40.4). Flow Science's comments showed that the model results indicate that the vast majority of pollutant loads from the watershed actually pass through the Harbor without settling. For example, Flow Science's comments indicate at p. 5 that existing loads of DDT are estimated to be between 2,200 and 22,600 g/yr, but only about 595 g/yr (as little as 2.6%) of the modeled pollutant load is simulated to settle to the Harbor sediments. Thus, it is unclear what the allowable load from the watershed to the receiving water actually is. If the WLAs assigned in the Table at pp. 19-21 of the final Basin Plan Amendment are applied as permit limits, this would be requiring MS4 dischargers to reduce their loadings by between 99.91 and 99.991%. Similar calculations are also provided in Flow Science's comments for PCBs, copper, lead, zinc, and PAHs.</p> <p>Thus, the point of Comment 40.12 is that it is unclear from the TMDL itself exactly what the WLAs in the TMDL represent, and we believe that there is significant risk that the WLAs in the TMDL would be divided amongst MS4 dischargers and applied directly as effluent limitations in MS4 permits. We believe that it is highly unlikely that a permit writer would have access to the model to recalculate the allowable loadings, relate them to the WLAs in the TMDL, and then calculate permit limits, as it appears they would be required to do to appropriately implement the WLAs of the TMDL.</p>
40.13	<p>The Draft TMDLs incorrectly assign Los Cerritos Channel Metals TMDLs responsible parties to the group of Greater Los Angeles and Long Beach Harbor Responsible Agencies. When discussing responsible agencies and potential implementation strategies, the Draft TMDLs erroneously disregard the Los Cerritos Channel Total Maximum Daily Loads for Metals established by USEPA on March 17, 2010. These TMDLs cover the Los Cerritos Channel Freshwater Watershed. Discharges from the jurisdictions of the MS4 permittees in this watershed flow through the freshwater channel before entering the Los Cerritos Channel Estuary, which in turn discharges to Alamitos Bay.</p> <p>The Draft TMDLs include a portion of the Los Cerritos Channel Freshwater Watershed, defined by USEPA as a Nearshore Watershed. The Draft Staff Report (p. 65) defines nearshore areas as "areas with freshwater inputs that discharge directly to saline receiving waters." As noted above, this is clearly not the case for discharges from responsible agencies within the Los Cerritos Freshwater Watershed.</p> <p>Recommendation: The Draft TMDLs should recognize and name the Los Cerritos Channel Freshwater watershed. Discharges to the Los Cerritos Channel should be recognized as discharges to freshwater, and should not be included in the "nearshore</p>	<p>See response to Comment 1.4.</p> <p>The response to Comment 1.4 reads: "These cities are part of the Los Cerritos Channel watershed. The Los Cerritos Channel Watershed and other watersheds draining to Alamitos Bay are appropriately included as part of the nearshore watersheds because they drain to Alamitos Bay, which is ultimately a source to San Pedro Bay (as noted in the comment, plumes from Alamitos Bay do pass through to San Pedro Bay during large events). The nearshore areas represent the additional subwatersheds draining to the Harbors system that are not part of the Los Angeles River, San Gabriel River, or Dominguez Channel watersheds. Only areas contributing directly to the saline TMDL receiving waters receive mass-based wastewater and load allocations; therefore, the LCC and other watersheds draining to Alamitos Bay (not a TMDL receiving water) receive concentration-based allocations."</p>	<p>We continue to reiterate our prior comment, and believe that the Regional Board's response to this comment is both non-responsive and confusing. Simply put, the City of Signal Hill drains to a freshwater watershed, and the saltwater objectives from CTR (the concentration-based allocations referred to in the Regional Board's response to comments) are not applicable to freshwater discharges to a freshwater water body. The Regional Board asserts that "only areas contributing directly to the saline TMDL receiving waters receive mass-based wastewater and load allocations," but then asserts that entities draining to a non-TMDL receiving water, i.e., Alamitos Bay, are for some reason to receive a concentration-based allocation.</p> <p>The City would remind Regional Board staff that the MS4 dischargers to the Los Cerritos Channel were assigned mass-based wastewater allocations by USEPA in the Los Cerritos Channel Total Maximum Daily Loads for Metals (adopted March 2010); the TMDL targets and allocations used by USEPA in this TMDL were for freshwater, not saline waters.</p> <p>Discharges from the City of Signal Hill (and other cities that drain to the Los Cerritos Channel) should not be assigned any wastewater allocation in the Harbor TMDL, and instead should only be included in the Los Cerritos Channel MS4 WLAs. There is no technical basis for assigning the concentration-based allocation of the Harbor TMDL to Signal Hill and the other cities that drain to the Los Cerritos Channel.</p>

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40.14	<p><i>watersheds" category, as discharges to this channel are not discharges to the saline waters of the Harbor.</i></p> <p>The Draft TMDLs should invoke available regulatory mechanisms for air deposition. Sections 13146 and 13247 of the California Water Code are tools to require State offices, departments, or boards to comply with State policy for water quality control and with water quality control plans approved or adopted by the State Board. The applicability of these tools for controlling atmospheric deposition of metals was recognized by the State Board in Resolution 2008-046, approving the Los Angeles River Metals TMDLs, and should be acknowledged in the Harbor Toxics TMDL. Further, since air deposition is by itself a large enough source to result in chronic non-compliance with the Draft TMDL, the Draft TMDLs should identify responsible parties for air deposition, and should identify the implementation actions required of those parties. Finally, the implementation sections of the Draft TMDLs should recognize the success of SB346, which will require reductions in the copper content of brake pads and reduce the amount of copper arriving to the water bodies and watersheds regulated by the Draft TMDLs.</p> <p>Recommendation: <i>The Draft TMDLs should be revised to include reference to Sections 13146 and 13247 of the California Water Code. The Draft TMDLs should be revised to identify the parties that will be responsible for attaining the air deposition loads, and to identify the actions that will be required of those parties. The implementation sections of the Draft TMDLs should also be revised to recognize the future load reductions that are anticipated to occur for copper as a result of SB 346, which will require reductions in the copper content of brake pads.</i></p>	<p>At this point in time, it is premature to reference Water Code sections 13146 and 13247 because further studies that characterize direct air deposition are needed before the load allocations can be directly translated into enforceable air quality management standards. The tentative BPA explains that additional monitoring of pollutants at air sampling sites – sites that more closely resemble the respective waterbodies – will help characterize these loadings.</p> <p>With respect to identifying the responsible parties for air deposition, the Regional Board does not separate by source, but only between WLAs and LAs.</p> <p>The Basin Plan has taken into account revisions to lead emissions. The lead air deposition allocation has been developed by using the recent SCAQMD air quality lead criteria (2010) multiplied by the surface area of each waterbody to produce direct air deposition allocations. Future changes to Cu, Zn and PAH air quality criteria, other regulation such as brake pad requirements, or other improvement in air quality may allow for re-calculations of air deposition allocations in future revisions to the TMDL. Therefore, when the new brake pad law has resulted in less atmospheric loading that may allow for re-calculations of copper allocations in future revisions to the TMDL.</p>	<p>The Regional Board's response to Comment 40.14 is inadequate for several reasons. First, if applicability of Water Code sections 13146 and 13247 for controlling atmospheric deposition of metals was recognized by the State Board in Resolution 2008-046, approving the Los Angeles River Metals TMDLs, it is not clear why it is premature to recognize the applicability of those legal tools in the case of the Harbor TMDLs. The regional air deposition data relied upon by the Regional Board in the development of this TMDL appear to be adequate for this purpose.</p> <p>Second, with respect to identifying responsible parties for air deposition, the Board's claim that it "does not separate by source, but only between WLAs and LAs," seems irrelevant. The comment requested that the Board "separate by source", but rather that it name responsible parties for relevant portions of the aerially deposited load. This is no different than naming parties responsible for pollutants in storm water runoff, as the Board has done in the TMDLs. If the Regional Board is in need of more time to perform studies to address air deposition, these studies should be conducted first, before the TMDL is finally developed, adopted, and approved.</p>
40.15	<p>The TMDL Staff Report estimates that between 11 and 35 million cubic yards of material would need to be dredged from seven areas within the Harbor complex, at a total estimated cost of \$680 million (for 11 million cy) to \$2.2 billion (for 35 million cy). As detailed in Attachment A to these comments, because of the way in which TMDL targets were derived and applied, this is likely a gross underestimate. The estimate would be particularly low if dredged areas would subsequently need to be capped with significant quantities of clean sediment. This possibility was suggested by Peter Kozelka (USEPA, personal communication, February 11, 2011) in response to the possibility of higher pollutant concentrations at depth within the sediment column, and would greatly increase the cost of the proposed dredging program. Finally, because air deposition to the water surface is, per the</p>	<p>The Staff Report did <i>not</i> estimate between 11 mcyc and 35mcyc of potential dredging; instead the Staff Report estimated 11 mcyc based on triad data available at this time. The 35 mcyc/ERL figure was included for comparison.</p> <p>It might be useful and appropriate, in some cases, to cap sediment, too. This would have to be determined on a project by project basis.</p> <p>In addition, see response to Comment 23.9, which discusses dredging information provided by Anchor QEA. This response discusses dredge volumes and costs.</p>	<p>The Regional Board response to Comment 40.15 is inadequate for several reasons. First, it is unclear what the Board means by the claim. "The 35 mcyc/ERL figure was included for comparison," or how this is supposed to make a difference to the issue at hand. In fact, the TMDL the Regional Board actually adopted uses the ERLs to calculate TMDL targets and allocations, and provides endpoints and requirements based upon the ERLs. In other words, it appears that the 35 mcyc/ERL calculations are based upon the actual, current requirements of the TMDL. As noted throughout our comments, the procedure by which this target could be replaced by an SQO analysis is unclear. If the 35 mcyc/ERL figure was included "for comparison purposes," surely the Board thinks it is within the realm of possibility as an upper limit of some sort.</p> <p>Second, the response that "it might be useful and appropriate, in some cases, to cap sediment, too. This would have to be determined on a project by project basis," does not address the point of the comment that if capping is required, the environmental</p>

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New	<p>Draft TMDL analysis, sufficient to result in noncompliance, it appears that dredging of the entire Harbor may be required on an ongoing, continuous basis.</p> <p>Further, the environmental impacts of dredging and/or capping are likely to have been underestimated as well. As noted previously, the Regional Board and USEPA have performed no analysis of pollutant concentrations at depth in cores below the surface layers to be dredged. Because many of the pollutants present in the Harbor are legacy pollutants whose use was banned long ago, higher concentrations are likely to be present at depth and may be disturbed and redistributed into the environment by the remedial actions themselves. Both dredging and capping are likely to last for years and to result in extraordinary environmental impacts, as detailed in Attachment A.</p> <p>Recommendation: <i>The environmental and cost analyses should be revised to more completely and comprehensively account for the duration and extent of dredging, and for the impacts and costs that will result from this reasonably foreseeable implementation requirement.</i></p> <p>[See Flow Science Comment Letter in the Board Package for attachment]</p>	<p>LA RWQCB Response</p>	<p>FSI Response to LA RWQCB Response</p> <p>impacts from the capping, its purpose and effectiveness (given ongoing air deposition), and the added costs from the needed capping would all need to be analyzed under CEQA. Clearly, the dredging cost estimate will be much higher than the one included in the TMDL implementation plan. EPA commented that capping is a "reasonably foreseeable" response to the TMDL, only further confirming the importance of the Board analyzing its effectiveness and the potentially significant environmental impacts.</p> <p>Third, the response fails to address at all the comment that dredging may be required on an ongoing basis due to aerial deposition—a consideration that would also greatly increase the cost of implementation—and the comment that dredging may well disturb high concentration-sediments at depth, which would result in substantial environmental impacts and additional implementation costs.</p> <p>Given the fact that capping and environmental costs associated with dredging have not been incorporated into the Board's implementation cost estimates, the Board's claim (in response to Comment 23.9) that implementation costs will likely be lower than stated in the TMDL document seems implausible at best.</p> <p>Finally, Flow Science's comments include five pages of comments on the environmental impacts that would likely result from implementation of the Harbor TMDL. The environmental impacts discussed in Flow Science's comments include disruption of higher pollutant concentrations at depth, increasing exposures; environmental impacts of capping; large-scale destruction or alteration of the landscape areas adjacent to the Harbor as a result of dredge spoil storage; impacts to parks and open space; the potential for contamination of upland soils; the potential for underwater erosion and contaminant redistribution within the Harbor; changes in deposition in near-shore environments adjacent to the Harbor; air quality impacts associated with dredging and/or capping activities; and other impacts. Flow Science also raised significant concerns about the cost estimates provided by the Regional Board, including the cost estimates associated with sand/organic filter systems and the costs and efficiency of structural and non-structural BMPs employed in near-shore watersheds. The comments again restate that it is nearly impossible to know how TMDL requirements would be implemented in NPDES permits for individual dischargers, what implementation measures might be required, and how the TMDL requirements would be achieved. None of these comments or concerns is addressed in the Regional Board's response to Flow Science's comments.</p> <p>This change to the TMDL is a highly significant change to the TMDL. This language, added to the TMDL Basin Plan Amendment after the close of public comments, appears to indicate that the TMDL requirements can be changed at any time during the implementation period. As noted above and in our original comments, even before the addition of this new language, it was exceedingly difficult to understand how the TMDL might be implemented and what requirements the TMDL might place upon NPDES permittees. This language appears to indicate that the TMDL requirements are a moving target.</p>
New	<p>Language was added to the TMDL at the close of the adoption hearing and after the close of all opportunity for public comment, as follows (see final Basin Plan Amendment at p. 34): "If at any point during the implementation plan, monitoring data or special studies indicate that load and waste load allocations will be attained, but fish tissue targets may not be achieved, the Regional Board shall reconsider the TMDL to modify the waste load and load allocations to ensure that the fish tissue targets are attained."</p>		

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			<p>This change is also problematic because fish frequently have wide ranges, and may move from less to more contaminated areas within and even beyond the Harbor. Finally, we note that the TMDL targets for fish tissue are "Fish Contaminant Goals," which "are based solely on public health considerations without regard to economic considerations, technical feasibility, or the counterbalancing benefits of fish consumption" (see OEHHA 2008, <i>Development of Fish Contaminant Goals and Advisory Tissue Levels for Common Contaminants in California Sport Fish</i>). The City of Signal Hill did not initially comment upon this choice of TMDL target because it appeared that TMDL compliance could be demonstrated through the State's SQO Policy (although the exact means by which that could be done were unclear). The added language makes this issue more relevant, and we would encourage the SWRCB, as a matter of public policy, to require the use of OEHHA's "Advisory Tissue Levels" or "ATLs" as targets for this TMDL.</p> <p>At the very least, the SWRCB should remand back to the Regional Board and require that it reopen the public comment period and conduct a further hearing on this important change to the TMDL, so as to allow the affected parties the opportunity to comment on the need for the change, the technical soundness of the changes, and its costs and achievability.</p>