

State of California
California Regional Water Quality Control Board, Los Angeles Region

RESOLUTION NO. R05-008
July 7, 2005

**Amendment to the *Water Quality Control Plan for the Los Angeles Region* to
Incorporate a Total Maximum Daily Load for Toxic Pollutants in Ballona Creek
Estuary**

WHEREAS, the California Regional Water Quality Control Board, Los Angeles Region, finds that:

- The Federal Clean Water Act (CWA) requires the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) to develop water quality objectives, which are sufficient to protect beneficial uses for each water body found within its region. Water bodies that do not meet water quality objectives or support beneficial uses are considered impaired.
- 2. A consent decree between the U.S. Environmental Protection Agency (USEPA), Heal the Bay, Inc. and BayKeeper, Inc. was approved on March 22, 1999. This court order directs the USEPA to complete Total Maximum Daily Loads (TMDLs) for all impaired waters within 13 years. A schedule was established in the consent decree for the completion of the first 29 TMDLs within 7 years, including completion of a TMDL to reduce toxic pollutants in Ballona Creek and Ballona Creek Estuary by March 22, 2005. The remaining TMDLs will be scheduled by Regional Board staff within the 13-year period.**
 - 3. USEPA and the consent decree plaintiffs agreed to extend the completion deadline for the Ballona Creek Estuary Toxic Pollutants TMDL to December 22, 2005, in order to enable the State to complete its adoption process and USEPA to approve the State-adopted TMDL.**
 - 4. The elements of a TMDL are described in 40 CFR 130.2 and 130.7 and section 303(d) of the CWA, as well as in USEPA guidance documents (Report No. EPA/440/4-91/001). A TMDL is defined as the sum of the individual waste load allocations for point sources, load allocations for nonpoint sources and natural background (40 CFR 130.2). Regulations further stipulate that TMDLs must be set at levels necessary to attain and maintain the applicable narrative and numeric water quality standards with seasonal variations and a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality (40 CFR 130.7(c)(1)). The regulations in 40 CFR 130.7 also state that TMDLs shall take into account critical conditions for stream flow, loading and water quality parameters.**
 - 5. The numeric targets in this TMDL are not water quality objectives and do not create new bases for enforcement against dischargers apart from the existing water quality standards they translate. The targets merely establish the bases through which load allocations (LAs) and waste load allocations (WLAs) are calculated. WLAs are only enforced for a discharger's own discharges, and then only in the context of its National Pollutant Discharge Elimination System (NPDES) permit, which must contain effluent limits consistent with the assumptions and requirements of the WLA (40 CFR 122.44(d)(vii)(B)). The Regional Board will develop**

permit requirements through subsequent permit actions that will allow all interested persons, including but not limited to municipal storm water dischargers, to provide comments on how the WLA will be translated into permit requirements.

6. As envisioned by Water Code section 13242, the TMDL contains a “description of surveillance to be undertaken to determine compliance with objectives.” The Compliance Monitoring and Special Studies elements of the TMDL recognize that monitoring will be necessary to assess the on-going condition of Ballona Creek and its tributaries and to assess the on-going effectiveness of efforts by dischargers to reduce toxic pollutants loading to Ballona Creek Estuary. Special studies may also be appropriate to provide further information about new data, new or alternative sources, and revised scientific assumptions. The TMDL does not establish the requirements for these monitoring programs or reports, although it does recognize the type of information that will be necessary to secure. The Regional Board’s Executive Officer will issue orders to appropriate entities to develop and to submit monitoring programs and technical reports. The Executive Officer will determine the scope of these programs and reports, taking into account any legal requirements, and issue the orders to the appropriate entities.
7. Upon establishment of TMDLs by the State or USEPA, the State is required to incorporate the TMDLs along with appropriate implementation measures into the State Water Quality Management Plan (40 CFR 130.6(c)(1), 130.7). This Water Quality Control Plan for the Los Angeles Region (Basin Plan), and applicable statewide plans, serves as the State Water Quality Management Plans governing the watersheds under the jurisdiction of the Regional Board. Attachment A to this resolution contains the Basin Planning language for this TMDL.
8. Ballona Creek flows as an open channel for just under 10 miles from Los Angeles (South of Hancock Park) through Culver City, reaching the Pacific Ocean at Playa del Rey. Ballona Creek and its tributaries drain a watershed with an area of approximately 128 square miles. The Ballona Creek watershed is comprised of the Cities of Beverly Hills and West Hollywood, and parts of the Cities of Culver City, Inglewood, Los Angeles, Santa Monica, and unincorporated areas of Los Angeles County. The proposed TMDL addresses impairments of water quality caused by toxic pollutants in Ballona Creek Estuary sediments.
9. “[I]t is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited.” (33 U.S.C. 1251(a)(3).) Water quality standards reflect this express national policy of Congress. When a pollutant is present at levels in excess of the water quality standards, then the pollutant is present in toxic amounts.
10. The Regional Board’s goal in establishing the Ballona Creek Estuary Toxic Pollutants TMDL is to protect the aquatic life and wildlife beneficial uses of Ballona Creek Estuary and to achieve sediment quality to protect these beneficial uses.
11. Regional Board staff have prepared a detailed technical document that analyzes and describes the specific necessity and rationale for the development of this TMDL. The technical document entitled "TMDL for Toxic Pollutants in Ballona Creek Estuary" is an integral part of this Regional Board action and was reviewed, considered, and accepted by the Regional Board before acting. Further, the technical document provides the detailed factual basis and analysis supporting the problem statement, numeric targets (interpretation of the narrative and numeric water quality objectives, used to calculate the pollutant allocations), source analysis, linkage analysis, waste load allocations (for point sources), load allocation (for nonpoint sources), margin of safety, and seasonal variations and critical conditions of this TMDL.

12. On July 7, 2005, prior to the Board's action on this resolution, public hearings were conducted on the Ballona Creek Estuary Toxic Pollutants TMDL. Notice of the hearing was sent to all known interested persons and published in the Los Angeles Times on March 27, 2005 in accordance with the requirements of Water Code Section 13244.
13. The public has had reasonable opportunity to participate in review of the amendment to the Basin Plan. A draft of the Ballona Creek Estuary Toxic Pollutants TMDL was released for public comment on March 28, 2005. A Notice of Hearing and Notice of Filing were published and circulated 45 days preceding Board action, and Regional Board staff responded to oral and written comments received from the public. The Regional Board held a public hearing on July 7, 2005 to consider adoption of the TMDL.
14. In amending the Basin Plan, the Regional Board considered the requirements set forth in Sections 13240 and 13242 of the California Water Code.
15. The amendment is consistent with the State Antidegradation Policy (State Board Resolution No. 68-16), in that it does not authorize any lowering of water quality and is designed to implement existing water quality objectives. Likewise, the amendment is consistent with the federal Antidegradation Policy (40 CFR 131.12).
16. Because the TMDL implements existing water quality objectives, the Regional Board has consistently maintained (along with the State Water Resources Control Board) that adopting a TMDL does not require the water boards to consider the factors of Water Code section 13241. The consideration of the Water Code section 13241 factors, by section 13241's express terms, only applies "in establishing water quality objectives." Here the Regional Board is not establishing water quality objectives, but as required by section 303(d)(1)(C) of the Clean Water Act is adopting a TMDL that will implement the previously established objectives that have not been achieved.
17. While the Regional Board is not required to consider the factors of Water Code section 13241, it, nonetheless, has developed and received significant information pertaining to the Water Code section 13241 factors and considered that information in developing and adopting this TMDL. The past, present, and probable future beneficial uses of water have been considered in that Ballona Creek Estuary is designated for a multitude of beneficial uses in the Basin Plan. Various living organisms (including vegetation, fish, invertebrates, and wildlife) are present in, transient through, and will be present in Ballona Creek Estuary. The environmental characteristics of Ballona Creek Estuary are spelled out at length in the Basin Plan and in the technical documents supporting this Basin Plan amendment, and have been considered in developing this TMDL. Water and sediment quality conditions that reasonably could be achieved through the coordinated control of all factors which affect water and sediment quality in the area have been considered via the discussion of likely means of compliance, and studies indicating that a mix of best management practices (BMPs), rather than advanced treatment plants, would achieve the TMDL. Authorizing certain storm water dischargers to rely on BMPs in the first instances reflects the reasonableness of the action in terms of the ability to implement the requirements, as well as a belief that the water and sediment quality conditions can reasonably be achieved in any event. Establishing a plan that will ensure Ballona Creek Estuary sediments are not toxic is a reasonable water quality condition. However, to the extent that there would be any conflict between the consideration of the factor in Water Code section 13241 subdivision (c), if the consideration were required, and the Clean Water Act, the Clean Water Act would prevail. Notably, national policy established by Congress prohibits the discharge of toxic pollutants in toxic amounts.

Economic considerations were considered throughout the development of the TMDL. Some of these economic considerations arise in the context of Public Resources Code section 21159 and are equally applicable here. The TMDL maps out a 15-year approach to implementing national policy prohibiting toxic pollutants in toxic amounts. This implementation program recognizes the economic limitations on achieving immediate compliance—especially for municipal storm water dischargers. The TMDL also authorizes the use of BMPs, to the extent authorized by law, for various storm water dischargers. Again, these recognize the economic limitations on certain storm water dischargers, while remaining faithful to the requirement to implement existing water quality standards and national policy. As part of this economic consideration, the Regional Board considered several studies pertaining to storm water (some submitted by dischargers showing costs as high as several hundred billion to implement all water quality standards in the Basin Plan through advanced treatment plants and some developed by the State Water Resources Control Board and Regional Board through economic studies prepared by professors at the University of Southern California, the University of California at Los Angeles, California State University at Sacramento showing costs of several billion dollars to implement all water quality standards in the Basin Plan using a mix of BMPs). The former studies consist of worst-case assumptions and these studies' high-end figures assume the widespread construction of treatment facilities. Based on existing policy geared toward BMPs and the latter studies, these assumptions are unrealistic. While section 13241 of the Water Code does not require a balancing of the costs and benefits, the latter studies also conclude that any costs would be outweighed by the societal and economic benefits to Los Angeles' coastal economy. Again, these "economic considerations" were all considered and are reflected in an implementation program that is flexible and allows 15 years to comply with the final WLAs. The need for housing within the region has been considered, but this TMDL is unlikely to affect housing needs. Whatever housing impacts could materialize are ameliorated by the flexible nature of this TMDL and the 15-year implementation period. Finally, the TMDL is likely to facilitate the use of recycled water, as demonstrated by the City of Los Angeles' Integrated Resources Plan.

18. Pursuant to Public Resources Code section 21080.5, the Resources Agency has approved the Regional Water Boards' basin planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq) requirements for preparing environmental documents. (14 Cal. Code Regs. § 15251(g); 23 Cal. Code Regs. § 3782.) As such, the Regional Water Board's basin planning documents together with an Environmental Checklist, are the "substitute documents" that contain the required environmental documentation under CEQA. (23 Cal Code Regs. § 3777.) The detailed technical report entitled "Total Maximum Daily Load for Toxic Pollutants in Ballona Creek Estuary," responses prepared by staff to address comments raised during the development of the TMDL, this resolution, and the Environmental Checklist serve as the substitute documents for this project. The project itself is the establishment of a TMDL for toxic pollutants in Ballona Creek Estuary. While the Regional Board has no discretion to not establish a TMDL (the TMDL is required by federal law) or for determining the water quality standard to be applied, the Board does exercise discretion in assigning waste load allocations and load allocations, determining the program of implementation, and setting various milestones in achieving the waste load allocations.
19. A CEQA Scoping hearing was conducted on June 12, 2003 at the Los Angeles Regional Water Quality Control Board, 320 West 4th Street, Los Angeles, CA 90013. A notice of the CEQA Scoping hearing was sent to interested parties including cities and/or counties with jurisdiction in or bordering the Ballona Creek watershed.

20. The lengthy implementation period allowed by the TMDL, will allow many compliance approaches to be pursued. In preparing the accompanying CEQA substitute documents, the Regional Board has considered the requirements of Public Resources Code section 21159 and California Code of Regulations, title 14, section 15187, and intends the substitute documents to serve as a tier 1 environmental review. Nearly all of the compliance obligations will be undertaken by public agencies that will have their own obligations under CEQA. Project level impacts will need to be considered in any subsequent environmental analysis performed by other public agencies, pursuant to Public Resources Code section 21159.2. If not properly mitigated at the project level, there could be adverse environmental impacts. The substitute documents for this TMDL, and in particular the checklist and staff's responses to comments, identify broad mitigation approaches that should be considered at the project level. Consistent with CEQA, the substitute documents do not engage in speculation or conjecture and only consider the reasonably foreseeable environmental impacts of the methods of compliance, the reasonably foreseeable feasible mitigation measures, and the reasonably foreseeable alternative means of compliance, which would avoid or eliminate the identified impacts.
21. The proposed amendment could have a significant adverse effect on the environment. However, there are feasible alternatives, feasible mitigation measures, or both that would substantially lessen any significant adverse impact. The public agencies responsible for those parts of the project can and should incorporate such alternatives and mitigation into any subsequent projects or project approvals. Possible alternatives and mitigation are described in the CEQA substitute documents, specifically the TMDL technical report and the Environmental Checklist. To the extent the alternatives, mitigation measures, or both are not deemed feasible by those agencies, the necessity of implementing the federally required toxic pollutants TMDL and removing the toxicity impairment from Ballona Creek Estuary (an action required to achieve the express, national policy of the Clean Water Act) outweigh the unavoidable adverse environmental effects.
22. Health and Safety Code section 57004 requires external scientific peer review for certain water quality control policies. Prior to public notice of the draft TMDL, the Regional Board submitted the scientific basis and scientific portions of the Ballona Creek Estuary Toxic Pollutants TMDL to the University of California for external scientific peer review. A written peer review report was received by the Regional Board. Minor modifications were made to the scientific portions of the TMDL to address concerns identified during the peer review process.
23. The regulatory action meets the "Necessity" standard of the Administrative Procedures Act, Government Code, Section 11353, Subdivision (b). As specified above, federal regulations require that TMDLs be incorporated into the water quality management plan. The Regional Board's Basin Plan is the Regional Board's component of the water quality management plan, and the Basin Plan is how the Regional Board takes quasi-legislative, planning actions. Moreover, the TMDL is a program of implementation for existing water quality objectives, and is, therefore, appropriately a component of the Basin Plan under Water Code section 13242. The necessity of developing a TMDL is established in the TMDL staff report, the section 303(d) list, and the data contained in the administrative record documenting the toxic pollutant impairments of the Ballona Creek Estuary.
24. The Basin Plan amendment incorporating a TMDL for Toxic Pollutants in Ballona Creek Estuary must be submitted for review and approval by the State Water Resources Control Board (State Board), the State Office of Administrative Law (OAL), and the USEPA. The

Basin Plan amendment will become effective upon approval by USEPA. A Notice of Decision will be filed with the Resources Agency.

25. The Regional Board has previously endorsed integrated water resources approaches to addressing Municipal Separate Storm Sewer System (MS4) implementation of TMDLs. The Regional Board believes integrated approaches require additional time for planning and development and are suitable for the 15-year implementation period discussed in this TMDL. As presently proposed, the TMDL implementation program does not distinguish between integrated and nonintegrated approaches. Further consideration of an implementation schedule incorporating and establishing incentives for an integrated water-resources approach, similar to the Santa Monica Bay Beaches Bacteria TMDL, is appropriate.

THEREFORE, be it resolved that pursuant to sections 13240 and 13242 of the Water Code, the Regional Board hereby amends the Basin Plan as follows:

1. Pursuant to Sections 13240 and 13242 of the California Water Code, the Regional Board, after considering the entire record, including oral testimony at the hearing, hereby adopts the amendments to Chapter 7 of the Water Quality Control Plan for the Los Angeles Region, as set forth in Attachment A hereto, to incorporate the elements of the Ballona Creek Estuary Toxic Pollutants TMDL.
2. The Executive Officer is directed to forward copies of the Basin Plan amendment to the State Board in accordance with the requirements of section 13245 of the California Water Code.
3. The Regional Board requests that the State Board approve the Basin Plan amendment in accordance with the requirements of sections 13245 and 13246 of the California Water Code and forward it to OAL and the USEPA.
4. If during its approval process Regional Board staff, the State Board or OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the Board of any such changes.
5. Regional Board staff are directed to explore and to propose revisions to the TMDL implementation schedule that incorporate an integrated water resources approach, similar to the implementation program in the Santa Monica Bay Beaches Bacteria TMDL. The Regional Board will consider any revisions proposed by staff, but is not committing to any particular course of action.
6. The Executive Officer is authorized to sign a Certificate of Fee Exemption.

I, Jonathan Bishop, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of a resolution adopted by the California Regional Water Quality Control Board, Los Angeles Region, on July 7, 2005.


Jonathan Bishop
Executive Officer

7/15/05
Date

Attachment A to Resolution No. R05-008

Amendment to the Water Quality Control Plan – Los Angeles Region to incorporate the Ballona Creek Estuary Toxic Pollutants TMDL

Adopted by the California Regional Water Quality Control Board, Los Angeles Region on July 7, 2005.

Amendments:

Table of Contents

Add:

Chapter 7. Total Maximum Daily Loads (TMDLs) Summaries
7-14 Ballona Creek Estuary Toxic Pollutants TMDL

List of Tables, Figures and Inserts

Add:

Chapter 7. Total Maximum Daily Loads (TMDLs)

Tables

7-14 Ballona Creek Estuary Toxic Pollutants TMDL

7-14.1 Ballona Creek Estuary Toxic Pollutants TMDL: Elements

7-14.2 Ballona Creek Estuary Toxic Pollutants TMDL: Implementation Schedule

Chapter 7. Total Maximum Daily Loads (TMDLs) Summaries, Section 7-14 (Ballona Creek Estuary Toxic Pollutants TMDL)

This TMDL was adopted by the Regional Water Quality Control Board on July 7, 2005.

This TMDL was approved by:

The State Water Resources Control Board on [Insert Date].

The Office of Administrative Law on [Insert Date].

The U.S. Environmental Protection Agency on [Insert Date].

The following tables include the elements of this TMDL.

Attachment A to Resolution No. R05-008

Table 7-14.1. Ballona Creek Estuary Toxic Pollutants TMDL: Elements

Element	Key Findings and Regulatory Provisions																											
<i>Problem Statement</i>	Ballona Creek and Ballona Creek Estuary (Estuary) is on the Clean Water Act Section 303(d) list of impaired waterbodies for cadmium, copper, lead, silver, zinc, chlordane, DDT, PCBs and PAHs in sediments. The following designated beneficial uses are impaired by these toxic pollutants: water contact recreation (REC1); non-contact water recreation (REC2); estuarine habitat (EST); marine habitat (MAR); wildlife habitat (WILD); rare and threatened or endangered species (RARE); migration of aquatic organisms (MIGR); reproduction and early development of fish (SPWN); commercial and sport fishing (COMM); and shellfish harvesting (SHELL).																											
<i>Numeric Target</i> <i>(Interpretation of the narrative and numeric water quality objective, used to calculate the allocations)</i>	<p>Numeric water quality targets are based on the sediment quality guidelines compiled by the National Oceanic and Atmospheric Administration, which are used in evaluating waterbodies within the Los Angeles Region for development of the 303(d) list. The Effects Range-Low (ERLs) guidelines are established as the numeric targets for sediments in Ballona Creek Estuary.</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="5" style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Metal Numeric Targets (mg/kg)</th> </tr> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Cadmium</th> <th style="text-align: center; border-bottom: 1px solid black;">Copper</th> <th style="text-align: center; border-bottom: 1px solid black;">Lead</th> <th style="text-align: center; border-bottom: 1px solid black;">Silver</th> <th style="text-align: center; border-bottom: 1px solid black;">Zinc</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.2</td> <td style="text-align: center;">34</td> <td style="text-align: center;">46.7</td> <td style="text-align: center;">1.0</td> <td style="text-align: center;">150</td> </tr> </tbody> </table> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Organic Numeric Targets (µg/kg)</th> </tr> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Chlordane</th> <th style="text-align: center; border-bottom: 1px solid black;">DDTs</th> <th style="text-align: center; border-bottom: 1px solid black;">Total PCBs</th> <th style="text-align: center; border-bottom: 1px solid black;">Total PAHs</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.5</td> <td style="text-align: center;">1.58</td> <td style="text-align: center;">22.7</td> <td style="text-align: center;">4,022</td> </tr> </tbody> </table>	Metal Numeric Targets (mg/kg)					Cadmium	Copper	Lead	Silver	Zinc	1.2	34	46.7	1.0	150	Organic Numeric Targets (µg/kg)				Chlordane	DDTs	Total PCBs	Total PAHs	0.5	1.58	22.7	4,022
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<i>Source Analysis</i>	Urban storm water has been recognized as a substantial source of metals. Numerous researchers have documented that the most prevalent metals in urban storm water (i.e., copper, lead, zinc, and to a lesser degree cadmium) are consistently associated with suspended solids. Because metals are typically associated with fine particles in storm water runoff, they have the potential to accumulate in estuarine sediments where they may pose a risk of toxicity. McPherson et al. ¹ estimated that 83% of the cadmium and 86% of the lead were associated with the particle phase in Ballona Creek. Similar to metals, the majority of organic constituents in storm water are associated with particulates, measured concentrations of PAHs, phthalates, and organochlorine compounds in Sepulveda Channel, Centinela Creek, and Ballona Creek found that the majority of these compounds occurred in association with suspended solids. There is toxicity associated with suspended solids in urban runoff discharged from Ballona Creek, as well as with the receiving water sediments. This toxicity is likely attributed to metals and PAHs associated with the suspended sediments.																											

¹ McPherson, T.N., S.J. Burian, H.J. Turin, M.K. Stenstrom and I.H. Suffet. 2002. Comparison of Pollutant Loads in Dry and Wet Weather Runoff in a Southern California Urban Watershed. *Water Science and Technology* 45:255-261.

Attachment A to Resolution No. R05-008

Element	Key Findings and Regulatory Provisions																											
	<p>Nonpoint sources are not considered a significant source of toxic pollutants in this TMDL. Nonpoint sources are urban runoff from the Ballona Wetland, since this area discharges directly to the Estuary through a tide gate, and direct atmospheric deposition. The Ballona Wetlands cover approximately 460 acres or 0.6% of the watershed, therefore, loading from this source is considered insignificant. Direct atmospheric deposition of metals and PAHs is considered insignificant because the portion of the Ballona Creek watershed covered by water is small, approximately 480 acres or 0.6% of the watershed. Indirect atmospheric deposition reflects the process by which metals deposited on the land surface may be washed off during storm events and delivered to Ballona Creek and its tributaries. The loading of metals associated with indirect atmospheric deposition are accounted for in the storm water runoff.</p>																											
Loading Capacity	<p>TMDLs are developed for cadmium, copper, lead, silver, zinc, chlordane, DDT, PCBs and PAHs within the sediments of the Ballona Creek Estuary.</p> <p>The loading capacity for Ballona Creek Estuary is calculated by multiplying the numeric targets by the average annual deposition of fine sediment, defined as silts (grain size 0.0625 millimeters) and smaller, within the Estuary by the bulk density of the sediment. The average annual fine sediment deposited is 5,004 cubic meters per year (m³/yr) and the bulk density is 1.42 metric tons per cubic meter (mt/m³). The TMDL is set equal to the loading capacity.</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="5" style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Metals Loading Capacity (kilograms/year)</th> </tr> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Cadmium</th> <th style="text-align: center; border-bottom: 1px solid black;">Copper</th> <th style="text-align: center; border-bottom: 1px solid black;">Lead</th> <th style="text-align: center; border-bottom: 1px solid black;">Silver</th> <th style="text-align: center; border-bottom: 1px solid black;">Zinc</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">8.5</td> <td style="text-align: center;">241.6</td> <td style="text-align: center;">332</td> <td style="text-align: center;">7.1</td> <td style="text-align: center;">1,066</td> </tr> </tbody> </table> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Organics Loading Capacity (grams/year)</th> </tr> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Chlordane</th> <th style="text-align: center; border-bottom: 1px solid black;">DDTs</th> <th style="text-align: center; border-bottom: 1px solid black;">Total PCBs</th> <th style="text-align: center; border-bottom: 1px solid black;">Total PAHs</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3.55</td> <td style="text-align: center;">11.2</td> <td style="text-align: center;">161</td> <td style="text-align: center;">28,580</td> </tr> </tbody> </table>	Metals Loading Capacity (kilograms/year)					Cadmium	Copper	Lead	Silver	Zinc	8.5	241.6	332	7.1	1,066	Organics Loading Capacity (grams/year)				Chlordane	DDTs	Total PCBs	Total PAHs	3.55	11.2	161	28,580
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Load Allocations (for nonpoint sources)	<p>Load allocations (LA) are assigned to nonpoint sources for Ballona Creek Estuary. Load allocations are developed for open space and direct atmospheric deposition.</p> <p>The mass-based load allocation for open space is equal to the percentage of the watershed covered by the Ballona Wetlands (0.6%) multiplied by the total loading capacity.</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="5" style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Metals Load Allocations for Open Space (kg/yr)</th> </tr> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Cadmium</th> <th style="text-align: center; border-bottom: 1px solid black;">Copper</th> <th style="text-align: center; border-bottom: 1px solid black;">Lead</th> <th style="text-align: center; border-bottom: 1px solid black;">Silver</th> <th style="text-align: center; border-bottom: 1px solid black;">Zinc</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.05</td> <td style="text-align: center;">1.4</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0.04</td> <td style="text-align: center;">6</td> </tr> </tbody> </table> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center; border-top: 1px solid black; border-bottom: 1px solid black;">Organics Load Allocations for Open Space (g/yr)</th> </tr> <tr> <th style="text-align: center; border-bottom: 1px solid black;">Chlordane</th> <th style="text-align: center; border-bottom: 1px solid black;">DDTs</th> <th style="text-align: center; border-bottom: 1px solid black;">Total PCBs</th> <th style="text-align: center; border-bottom: 1px solid black;">Total PAHs</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.02</td> <td style="text-align: center;">0.1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">160</td> </tr> </tbody> </table>	Metals Load Allocations for Open Space (kg/yr)					Cadmium	Copper	Lead	Silver	Zinc	0.05	1.4	2	0.04	6	Organics Load Allocations for Open Space (g/yr)				Chlordane	DDTs	Total PCBs	Total PAHs	0.02	0.1	1	160
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Attachment A to Resolution No. R05-008

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	<p>The mass-based load allocation for direct atmospheric deposition is equal to the percentage of the watershed covered by water (0.6%) multiplied by the total loading capacity.</p> <p><u>Metals Load Allocations for Direct Atmospheric Deposition (kg/yr)</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Cadmium</th> <th style="text-align: center;">Copper</th> <th style="text-align: center;">Lead</th> <th style="text-align: center;">Silver</th> <th style="text-align: center;">Zinc</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.05</td> <td style="text-align: center;">1.4</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0.04</td> <td style="text-align: center;">6</td> </tr> </tbody> </table> <p><u>Organics Load Allocations for Direct Atmospheric Deposition (g/yr)</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Chlordane</th> <th style="text-align: center;">DDTs</th> <th style="text-align: center;">Total PCBs</th> <th style="text-align: center;">Total PAHs</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0.02</td> <td style="text-align: center;">0.1</td> <td style="text-align: center;">1</td> <td style="text-align: center;">170</td> </tr> </tbody> </table>	Cadmium	Copper	Lead	Silver	Zinc	0.05	1.4	2	0.04	6	Chlordane	DDTs	Total PCBs	Total PAHs	0.02	0.1	1	170																																																							
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Attachment A to Resolution No. R05-008

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<i>Margin of Safety</i>	An implicit margin of safety is applied through the use of the more protective sediment quality guideline values. The ERLs were selected over the higher ERMs as the numeric targets.																																				
<i>Implementation</i>	<p>The regulatory mechanisms used to implement the TMDL will include the Los Angeles County Municipal Storm Water NPDES Permit (MS4), the State of California Department of Transportation (Caltrans) Storm Water Permit, minor NPDES permits, general NPDES permits, general industrial storm water NPDES permits, general construction storm water NPDES permits. Nonpoint sources will be regulated through the authority contained in sections 13263 and 13269 of the Water Code, in conformance with the State Water Resources Control Board's Nonpoint Source Implementation and Enforcement Policy (May 2004). Each NPDES permit assigned a WLA shall be reopened or amended at re-issuance, in accordance with applicable laws, to incorporate the applicable WLAs as a permit requirement.</p> <p>The Regional Board shall reconsider this TMDL in six years after the effective date of the TMDL based on additional data obtained from special studies. Table 7-14.2 presents the implementation schedule for the responsible permittees.</p>																																				

Attachment A to Resolution No. R05-008

Element	Key Findings and Regulatory Provisions
	<p>Minor NPDES Permits and General Non-Storm Water NPDES Permits:</p> <p>The concentration-based waste load allocations for the minor NPDES permits and general non-storm water NPDES permits will be implemented through NPDES permit limits. Permit writers may translate applicable waste load allocations into effluent limits for the minor and general NPDES permits by applying applicable engineering practices authorized under federal regulations. The minor and general non-storm water NPDES permittees are allowed up to seven years from the effective date of the TMDL to achieve the waste load allocations.</p> <p>General Industrial Storm Water Permit:</p> <p>The Regional Board will develop a watershed specific general industrial storm water permit to incorporate waste load allocations. Concentration-based permit limits may be set to achieve the mass-based waste load allocations. These concentration-based limits would be equal to the concentration-based waste load allocations assigned to the other NPDES permits. It is expected that permit writers will translate the waste load allocations into BMPs, based on BMP performance data. However, the permit writers must provide adequate justification and documentation to demonstrate that specified BMPs are expected to result in attainment of the numeric waste load allocations. The general industrial storm water permittees are allowed up to seven years from the effective date of the TMDL to achieve the waste load allocations.</p> <p>General Construction Storm Water Permit:</p> <p>Waste load allocations will be incorporated into the State Board general permit upon renewal or into a watershed specific general construction storm water permit developed by the Regional Board.</p> <p>Within seven years of the effective date of the TMDL, the construction industry will submit the results of BMP effectiveness studies to determine BMPs that will achieve compliance with the waste load allocations assigned to construction storm water permittees. Regional Board staff will bring the recommended BMPs before the Regional Board for consideration within eight years of the effective date of the TMDL. General construction storm water permittees will be considered in compliance with waste load allocations if they implement these Regional Board approved BMPs.</p> <p>All general construction permittees must implement the approved BMPs within nine years of the effective date of the TMDL. If no effectiveness studies are conducted and no BMPs are approved by the Regional Board within eight years of the effective date of the TMDL, each general construction storm water permit holder will be subject to site-specific BMPs and monitoring requirements to demonstrate compliance with waste load allocations.</p>

Attachment A to Resolution No. R05-008

Element	Key Findings and Regulatory Provisions
	<p>MS4 and Caltrans Storm Water Permits:</p> <p>The County of Los Angeles, City of Los Angeles, Beverly Hills, Culver City, Inglewood, Santa Monica, and West Hollywood are jointly responsible for meeting the mass-based waste load allocations for the MS4 permittees. Caltrans is responsible for meeting their mass-based waste load allocations, however, they may choose to work with the MS4 permittees. The primary jurisdiction for the Ballona Creek watershed is the City of Los Angeles.</p> <p>Each municipality and permittee will be required to meet the waste load allocations at the designated TMDL effectiveness monitoring points. A phased implementation approach, using a combination of non-structural and structural BMPs may be used to achieve compliance with the waste load allocations. The administrative record and the fact sheets for the MS4 and Caltrans storm water permits must provide reasonable assurance that the BMPs selected will be sufficient to implement the numeric waste load allocations. We expect that reductions to be achieved by each BMP will be documented and that sufficient monitoring will be put in place to verify that the desired reductions are achieved. The permits should also provide a mechanism to adjust the required BMPs as necessary to ensure their adequate performance.</p> <p>The implementation schedule for the MS4 and Caltrans permittees consists of a phased approach, with compliance to be achieved in prescribed percentages of the watershed, with total compliance to be achieved within 15 years.</p>
<p><i>Seasonal Variations and Critical Conditions</i></p>	<p>There is a high degree of inter- and intra-annual variability in sediments deposited at the mouth of Ballona Creek. This is a function of the storms, which are highly variable between years. Studies by the Army Corps of Engineers have shown that sediment delivery to Ballona Creek is related to the size of the storm (USACE, 2003). The TMDL is based on a long-term average deposition patterns over a 10-year period from 1991 to 2001. This time period contains a wide range of storm conditions and flows in the Ballona Creek watershed. Use of the average condition for the TMDL is appropriate because issues of sediment effects on benthic communities and potential for bioaccumulation to higher trophic levels occurs over long time periods.</p>
<p><i>Monitoring</i></p>	<p>Effective monitoring will be required to assess the condition of Ballona Creek and Estuary and to assess the on-going effectiveness of efforts by dischargers to reduce toxic pollutants loading to the Ballona Creek Estuary. Special studies may also be appropriate to provide further information about new data, new or alternative sources, and revised scientific assumptions. Below the Regional Board identifies the various goals of monitoring efforts and studies. The programs, reports, and studies will be developed in response to subsequent orders issued by the Executive Officer.</p>

Attachment A to Resolution No. R05-008

Element	Key Findings and Regulatory Provisions
	<p>Ambient Monitoring</p> <p>An ambient monitoring program is necessary to assess water quality throughout Ballona Creek and its tributaries and to assess the progress being made to remove the toxic pollutant impairments in Ballona Creek Estuary sediments. Data on background water quality for organics and sediments will help refine the numeric targets and waste load allocations and assist in the effective placement of BMPs. In addition, fish and mussel tissue data is required in Ballona Creek Estuary to confirm the fish tissue listings.</p> <p>Water quality samples shall be collected from Ballona Creek and Estuary monthly and analyzed for cadmium, copper, lead, silver, zinc, chlordane, dieldrin, DDT, total PCBs and total PAHs at detection limits that are at or below the minimum levels until the TMDL is reconsidered in the sixth year. The minimum levels are those published by the State Water Resources Control Board in Appendix 4 of the Policy for the Implementation of Toxic Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California, March 2, 2000. Special emphasis should be placed on achieving detection limits that will allow evaluation relative to the CTR standards. If these can not be achieved with conventional techniques, then a special study should be proposed to evaluate concentrations of organics.</p> <p>Storm water monitoring conducted as part of the MS4 storm water monitoring program should continue to provide assessment of water quality during wet-weather conditions and loading estimates from the watershed to the Estuary. If analysis of chlordane, dieldrin, DDT, total PCBs or total PAHs are not currently part of the sampling programs these organics should be added. In addition, special emphasis should be placed on achieving lower detection limits for DDTs, PCBs and PAHs.</p> <p>The MS4 and Caltrans storm water permittees are jointly responsible for conducting bioaccumulation testing of fish and mussel tissue within the Estuary. The permittees are required to submit for approval of the Executive Officer a monitoring plan that will provide the data needed to confirm the 303(d) listing or delisting, as applicable.</p> <p>Representative sediment sampling locations shall be randomly selected within the Estuary and analyzed for cadmium, copper, lead, silver, zinc, chlordane, dieldrin, DDT, total PCBs and total PAHs at detection limits that are lower than the ERLs. Sediment samples shall also be analyzed for total organic carbon, grain size and sediment toxicity testing. Initial sediment monitoring should be done quarterly in the first year of the TMDL to define the baseline and semi-annually, thereafter, to evaluate effectiveness of the BMPs until the TMDL is reconsidered in the sixth year.</p> <p>The sediment toxicity testing shall include testing of multiple species, a minimum of three, for lethal and non-lethal endpoints. Toxicity testing may include: the 28-day and 10-day amphipod mortality test; the sea</p>

Attachment A to Resolution No. R05-008

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	<p>urchin fertilization testing of sediment pore water; and the bivalve embryo testing of the sediment/water interface. The chronic 28-day and shorter-term 10-day amphipod tests may be conducted in the initial year of quarterly testing and the results compared. If there is no significant difference in the tests, then the less expensive 10-day test can be used throughout the rest of the monitoring, with some periodic 28-day testing.</p> <p>TMDL Effectiveness Monitoring</p> <p>The water quality samples collected during wet weather as part of the MS4 storm water monitoring program shall be analyzed for total dissolved solids, settleable solids and total suspended solids if not already part of the existing sampling program. Sampling shall be designed to collect sufficient volumes of settleable and suspended solids to allow for analysis of cadmium, copper, lead, silver, zinc, chlordane, dieldrin, total DDT, total PCBs, total PAHs, and total organic carbon in the bulk sediment.</p> <p>Semi-annually, representative sediment sampling locations shall be randomly selected within the Estuary and analyzed for cadmium, copper, lead, silver, zinc, chlordane, dieldrin, DDT, total PCBs, and total PAHs at detection limits that are lower than the ERLs. The sediment samples shall also be analyzed for total organic carbon, grain size and sediment toxicity. The sediment toxicity testing shall include testing of multiple species, a minimum of three, for lethal and non-lethal endpoints. Toxicity testing may include: the 28-day and 10-day amphipod mortality test; the sea urchin fertilization testing of sediment pore water; and the bivalve embryo testing of the sediment/water interface.</p> <p>Toxicity shall be indicated by an amphipod survival rate of 70% or less in a single test. Accelerated monitoring shall be conducted to confirm toxicity at stations identified as toxic. Accelerated monitoring shall consist of six additional tests, approximately every two weeks, over a 12-week period. If the results of any two of the six accelerated tests are less than 90% survival, then the MS4 and Caltrans permittees shall conduct a Toxicity Identification Evaluation (TIE). The TIE shall include reasonable steps to identify the sources of toxicity and steps to reduce the toxicity.</p> <p>The Phase I TIE shall include the following treatments and corresponding blanks: baseline toxicity; particle removal by centrifugation; solid phase extraction of the centrifuged sample using C8, C18, or another media; complexation of metals using ethylenediaminetetraacetic acid (EDTA) addition to the raw sample; neutralization of oxidants/metals using sodium thiosulfate addition to the raw sample; and inhibition of organo-phosphate (OP) pesticide activation using piperonyl butoxide addition to the raw sample (crustacean toxicity tests only).</p>

Attachment A to Resolution No. R05-008

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	<p>Bioaccumulation monitoring of fish and mussel tissue within the Estuary shall be conducted. The permittees are required to submit for approval of the Executive Officer a monitoring plan that will provide the data needed to assess the effectiveness of the TMDL.</p> <p>The general industrial storm water permit shall contain a model monitoring and reporting program to evaluate BMP effectiveness. A permittee enrolled under the general industrial permit shall have the choice of conducting individual monitoring based on the model program or participating in a group monitoring effort. MS4 permittees are encouraged to take the lead in group monitoring efforts for industrial facilities within their jurisdiction because compliance with waste load allocations by these facilities will in many cases translate to reductions in contaminate loads to the MS4 system.</p> <p>Special Studies</p> <p>Special studies are recommended to refine source assessments, to provide better estimates of loading capacity, and to optimize implementation efforts. The Regional Board will re-consider the TMDL in the sixth year after the effective date in light of the findings of these studies. Special studies may include:</p> <ul style="list-style-type: none"> • Evaluation and use of low detection level techniques to evaluate water quality concentrations for those contaminants where standard detection limits cannot be used to assess compliance for CTR standards or are not sufficient for estimating source loadings from tributaries and storm water. • Developing and implementing a monitoring program to collection the data necessary to apply a multiple lines of evidence approach. • Evaluation and use of sediment TIEs to evaluate causes of any recurring sediment toxicity. • Evaluate partitioning coefficients between water column and sediment to assess the contribution of water column discharges to sediment concentrations in the Estuary. • Studies to refine relationship between pollutants and suspended solids aimed at better understanding of the delivery of pollutants to the watershed. • Studies to understand transport of sediments to the estuary, including the relationship between storm flows, sediment loadings to the estuary, and sediment deposition patterns within the estuary. • Studies to evaluate effectiveness of BMPs to address pollutants and/or sediments.

Attachment A to Resolution No. R05-008

Table 7-14.2. Ballona Creek Estuary Toxic Pollutants TMDL: Implementation Schedule

Date	Action
Effective date of the TMDL	Regional Board permit writers shall incorporate the waste load allocations for sediment into the NPDES permits. Waste load allocations will be implemented through NPDES permit limits in accordance with the implementation schedule contained herein, at the time of permit issuance, renewal or re-opener.
Within 6 months after the effective date of the State Board adopted sediment quality objectives and implementation policy	The Regional Board will re-assess the numeric targets and waste load allocations for consistency with the State Board adopted sediment quality objectives.
5 years after effective date of the TMDL	Responsible jurisdictions and agencies shall provide to the Regional Board result of any special studies.
6 years after effective date of the TMDL	The Regional Board shall reconsider this TMDL to re-evaluate the waste load allocations and the implementation schedule.
MINOR NPDES PERMITS AND GENERAL NON-STORM WATER NPDES PERMITS	
7 years after effective date of the TMDL	The non-storm water NPDES permits shall achieve the concentration-based waste load allocations for sediment per provisions allowed for in NPDES permits.
GENERAL INDUSTRIAL STORM WATER PERMIT	
7 years after effective date of the TMDL	The general industrial storm water permits shall achieve the mass-based waste load allocations for sediment per provisions allowed for in NPDES permits. Permits shall allow an iterative BMP process including BMP effectiveness monitoring to achieve compliance with permit requirements.
GENERAL CONSTRUCTION STORM WATER PERMIT	
7 years from the effective date of the TMDL	The construction industry will submit the results of the BMP effectiveness studies to the Regional Board for consideration. In the event that no effectiveness studies are conducted and no BMPs are approved, permittees shall be subject to site-specific BMPs and monitoring to demonstrate BMP effectiveness.
8 years from the effective date of the TMDL	The Regional Board will consider results of the BMP effectiveness studies and consider approval of BMPs no later than six years from the effective date of the TMDL.
9 years from the effective date of the TMDL	All general construction storm water permittees shall implement Regional Board-approved BMPs.

Attachment A to Resolution No. R05-008

Date	Action
MS4 AND CALTRANS STORM WATER PERMITS	
12 months after the effective date of the TMDL	In response to an order issued by the Executive Officer, the MS4 and Caltrans storm water NPDES permittees must submit a coordinated monitoring plan, to be approved by the Executive Officer, which includes both ambient monitoring and TMDL effectiveness monitoring. Once the coordinated monitoring plan is approved by the Executive Officer, ambient monitoring shall commence.
5 years after effective date of TMDL (Draft Report) 5 ½ years after effective date of TMDL (Final Report)	The MS4 and Caltrans storm water NPDES permittees shall provide a written report to the Regional Board outlining how they will achieve the waste load allocations for sediment to Ballona Creek Estuary. The report shall include implementation methods, an implementation schedule, proposed milestones, and any applicable revisions to the TMDL effectiveness monitoring plan.
7 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 25% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.
9 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 50% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.
11 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 75% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.
15 years after effective date of the TMDL	The MS4 and Caltrans storm water NPDES permittees shall demonstrate that 100% of the total drainage area served by the MS4 system is effectively meeting the waste load allocations for sediment.