Santa Ana Regional Water Quality Control Board

Updates and Errata

to the

December 26, 2024 Public Release of Draft Documents

for the

Proposed Draft Amendment to the Water Quality Control Plan, Santa Ana River (Basin Plan) to Incorporate Revised Total Maximum Daily Loads (TMDLs) for Nutrients in Lake Elsinore and Canyon Lake

Proposed Order Number R8-2025-0014

Updates and Errata as May 09, 2025

This document represents tentative updates and errata to the December 26, 2024 proposed draft Amendment and supporting documents to the Water Quality Control Plan, Santa Ana River (Basin Plan) to Incorporate Revised Total Maximum Daily Loads (TMDLs) for Nutrients in Lake Elsinore and Canyon Lake. The updates include changes to the draft Basin Plan amendment and draft TMDL Technical Report. Electronic copies of the draft Basin Plan amendment and supporting documents can be found on the Santa Ana Water Board website at: Santa Ana Region - TMDL - Lake Elsinore and Canyon Lake | Santa Ana Regional Water Quality Control Board

responses for alternative scenarios of reduced external and internal nutrient loads. For setting interim and final numeric targets, external nutrient loads to the lake models are reduced to levels expected for a reference nutrient concentration. The lake models could also be used in future implementation planning to test the water quality benefits that may be achieved with existing and potential supplemental watershed best management practices (BMPs) and lake management scenarios. The only physical structures included in the modeled reference watershed condition linkage analyses are: (1) Railroad Canyon Dam, because Canyon Lake would not exist without its presence; and (2) the levee and lower outfall elevation in Lake Elsinore that came about as part of the LEMP project. Simulation results for chlorophyll-*a*, dissolved oxygen and ammonia-N, plotted to create CDFs, serve as interim and final numeric targets for these TMDLs. Further, the water quality models used to develop interim and final numeric targets for the lake segments can be used to support future implementation planning to test the potential benefits from existing and potential supplemental in-lake projects.

The watershed model for an undeveloped, natural land use condition as defined by the 2024 TMDL Technical Report was used to identify the 2024 TMDLs, WLA, and LAs needed to meet the reference nutrient CDFs in the Lakes.

TMDLs and Allocations

Nutrient loading to Canyon Lake and Lake Elsinore varies depending on the hydrologic conditions that occur in the San Jacinto watershed. The 2024 TMDL Technical Report (LESJWA 2024) provides a detailed collection of available watershed and lake monitoring data, descriptions of the hydrologic and hydrodynamic analyses and modeling, and numerous other factors that were used in the development of TMDLs, WLAs for point sources of nutrients, and LAs for non-points sources of nutrients.

In summary, the Phase III TMDLs are calculated as the average annual WLAs for point sources and LAs for non-point sources minus annual losses of watershed nutrient loads in upstream basins, e.g., Mystic Lake, or channel bottoms.

Calculation of these TMDLs is shown as follows:

TMDL= WLA + LA – Retention.

As discussed below, margins of safety are ~~explicitly~~ implicitly accounted for in the calculation of reference nutrient concentrations from the Cranston Guard Station dataset for the San Jacinto River.

For all external nutrient sources, WLAs and LAs are determined from nutrient concentrations in wet weather runoff from a reference watershed ($C_{reference}$). For Lake Elsinore, current volumes (V_{annual}) of runoff and supplemental recycled water additions are accounted for in the estimation of WLAs and LAs, as follows:

Table 6-XXX. Summary of Milestones, WLAs and LAs for Major Categories of Nutrient Sources to Canyon Lake from Sub-watersheds below Mystic Lake

Source	Phase II Milestones (kg/yr as 10-yr running average)		Phase III Allocations (kg/yr as 10-yr running average)	
	TP	TN	TP	TN
Canyon Lake TMDL	5,017	16,298	2,608	12,230

[1]If the Santa Ana Water Board determines at any time during Phase II or Phase III that any facilities regulated in Order R8-2018-0001 as CAFOs (as defined in 40 CFR 122.23(b)(2)) should instead be regulated as nonpoint sources, the wasteload allocation for such facilities shall be deemed a load allocation and shall continue to apply. Milestones will remain as shown in the table.

Table 6-XXX. Summary of Milestones, WLAs and LAs for Major Categories of Nutrient Sources to Lake Elsinore

Source	Phase II Milestones (kg/yr as 10-yr running average)		Phase III Allocations (kg/yr as 10-yr running average)	
	TP	TN	TP	TN
Local Lake Elsinore Watershed				
MS4 Jurisdiction Runoff (WLA)	~~1,890~~1,876	~~5,434~~5,395	~~945~~938	~~4,016~~3,987
Caltrans Jurisdiction Runoff (WLA)	42	120	21	89
Dairies (WLA)[1]	3	8	1	6
Irrigated Agriculture (LA)	119	342	59	253
Non-Irrigated Agriculture (LA)	26	75	13	55
Other State/Federal/Tribal Jurisdictions (LA)	3,050	8,769	1,525	6,481
Minus Reference Watershed Retention	~~-4,928~~-4,915	~~-14,168~~ -14,131	~~-2,464~~-2,458	~~-10,472~~ -10,444
Subtotal Watershed Allocation (above Mystic Lake)	201	579	101	428
Canyon Lake to Lake Elsinore (LA)	2,471	7,104	1,235	5,251
Supplemental Water (see table 6-xxx below)	3,317	9,535	1,658	7,048
Atmospheric Deposition	156	9,682	156	9,682
Sediment Nutrient Flux	15,227	104,559	10,221	91,232
Lake Elsinore TMDL	~~21,995~~21,994	~~133,250~~133,248	~~13,683~~13,683	~~114,964~~114,963

[1] If the Santa Ana Water Board determines at any time during Phase II or Phase III that any facilities regulated in Order R8-2018-0001 as CAFOs (as defined in 40 CFR 122.23(b)(2)) should instead be regulated as nonpoint sources, the wasteload allocation for such facilities shall be deemed a load allocation and shall continue to apply. Milestones will remain as shown in the table.

revised by the Santa Ana Water Board per Phase III, Task 2 of the Implementation Plan OR

Option 2: Demonstrate attainment of the Numeric Targets using in-lake water quality data collected over a minimum of a 10-year period OR

Option 3: Demonstrate attainment of the Phase III watershed runoff LAs in Tables 6-XXX and 6-XXX through the use of monitoring data that shows nutrients in watershed loads from the applicable category of dischargers are at or below the applicable LAs for TP and TN OR

Option 4: Demonstrate attainment of the Phase III watershed runoff LAs in Tables 6-XXX and 6-XXX by offsetting nutrient watershed runoff loads in excess of the LAs using in lake nutrient controls. Excess watershed runoff loads arriving at the lakes may be offset through participation in a regional in-lake projects that meet the requirements of the Implementation Plan and reduces internal nutrient load. Use of offsets under Option 4 is not mutually exclusive from the other options and may be combined with the options as determined appropriate OR

Option 5: Demonstrate attainment of the Phase III total allocations for TP and TN loads for the lakes through collective watershed compliance by offsetting watershed loads in excess of Phase III allocations using controls on nutrient loads in the lakes. Excess watershed runoff loads arriving at the lakes may be offset through participation in a regional in-lake projects, as applicable, that meet the requirements of the Implementation Plan and reduce internal nutrient load OR

Option 6:___Demonstrate attainment of the Phase III watershed runoff LAs in Tables 6-XXX and 6-XXX through implementation of volume retention pollution controls or BMPs that retain sufficient runoff volume such that it may be demonstrated that the downstream load from a given drainage area is equal to or less than would occur in the reference watershed condition.

Margin of Safety

When establishing TMDLs, federal regulations require states to include a margin of safety that considers the lack of knowledge concerning the relationship between allocations and the quality of the receiving water. For these TMDLs, the margin of safety is an ~~explicit~~ implicit margin of safety incorporated into the TMDLs through conservative data analysis in establishing the reference watershed condition. Notably, this ~~explicit~~ implicit margin of safety does not recognize or account for additional implicit margins of safety that have also occurred in the development of these TMDLs. As explained above, numeric targets and allocations are being established for a reference watershed condition based on data collected from the San Jacinto River at the Cranston Guard Station. The data set includes wet weather monitoring results for 10 storm events between 2003 and

specifically identified for each task, and by the Santa Ana Water Board. The level of responsibility for TMDL implementation varies based on the levels of estimated loads from the identified responsible parties, their sub-watershed location, applicability of the TMDLs for each lake, as identified for each task and other factors as determined appropriate. Further, the responsible parties may change as new and additional data and information becomes available that may either identify new, additional categories of responsible dischargers or finds that certain identified dischargers should no longer be considered responsible. Land use in this watershed continues to change rapidly as open space and agricultural land uses transition to urban land uses, which may necessitate the need for the Santa Ana Water Board to re-evaluate the TMDL responsible parties on a periodic basis. The Santa Ana Water Board will periodically update the Basin Plan to make these changes. It is anticipated that periodic updates to the Basin Plan related to identification of responsible parties for these TMDLs would be limited in nature, and that such limited updates may occur more frequently than the scheduled TMDL reconsiderations at years 10, 18, 30 and every 10 years thereafter.

The responsible parties are identified in Table 6-XXX. In parentheses are their associated watershed(s) for applicability of the allocations identified in Tables 6-XXX and 6-XXX.

Table 6-XXX. Responsible Parties and Applicable Watershed Allocations

RESPONSIBLE PARTIES[1]	
MS4s	
~~City of Banning (watershed above Mystic Lake)~~	City of Beaumont (watershed above Mystic Lake)
City of Canyon Lake (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)	City of Hemet (watershed above Mystic Lake and Canyon Lake)
City of Moreno Valley (Canyon Lake)	City of Murrieta (Canyon Lake)
City of Menifee (Canyon Lake and local Lake Elsinore)	City of Perris (Canyon Lake)
City of Riverside (watershed above Mystic Lake)	City of San Jacinto (watershed above Mystic Lake and Canyon Lake)
City of Wildomar (local Lake Elsinore)	County of Riverside (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)
OTHER NPDES PERMITTEES	
Elsinore Valley Municipal Water District (Lake Elsinore)	San Jacinto Dairies (CAFs/CAFOs) (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)
California Department of Transportation (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)	Eastern Municipal Water District

[1] The City of Banning discharges nutrients to the watershed but does not have a wasteload allocation, pending results from Task 9 to define and identify minor source contributors. The absence of assigned milestones or a wasteload allocation to the City is not considered a WLA of zero. The TMDL assumes that the current loading from this area will continue with insignificant to no net increase.

March Joint Powers ~~Authority[1]~~ Authority[2] (Canyon Lake)	
NON-NPDES PERMITTEES	
San Jacinto Agricultural Operators of Irrigated Lands (watershed above Mystic Lake and Canyon Lake)	California Department of Fish and Wildlife (watershed above Mystic Lake and Canyon Lake)
San Jacinto Agricultural Operators of Non-Irrigated Lands (watershed above Mystic Lake and Canyon Lake)	Other Federal, State and Tribal Lands (varies)
United States Forest Service (watershed above Mystic Lake, Canyon Lake and local Lake Elsinore)	

Incorporation of TMDLs into Orders of the Santa Ana Water Board

The Santa Ana Water Board and the State Water Board must update NPDES permits, waste discharge requirements, conditional waivers of waste discharge requirements and other orders, as appropriate, to implement these TMDLs and their implementing provisions. Such updates are necessary because TMDLs are not self-implementing and must be incorporated into the appropriate regulatory mechanisms to be enforceable. For the 2024 Nutrient TMDLs, there are existing and potentially new orders that will need to incorporate these TMDLs and applicable provisions of the Implementation Plan.

The purpose of this section is to provide transparency regarding how the Santa Ana Water Board expects to incorporate these 2024 Nutrient TMDLs into relevant permits.

For those subject to NPDES permits, section 303(d) of the Clean Water Act (CWA) requires WLAs to be implemented through the NPDES permit program. The State Water Board and regional water boards implement the NPDES permit program by issuing waste discharge requirements. After a TMDL has been developed, NPDES permits are updated to include water quality-based effluent limitations and other permit provisions that must be consistent with the assumptions and requirements of the TMDLs, including applicable WLAs, and include applicable provisions of the Implementation Plan.

For non-NPDES permittees, the Santa Ana Water Board may implement these TMDLs through waste discharge requirements, conditional waivers from waste discharge requirements, or other orders that the Santa Ana Water Board determines appropriate. When adopting waste discharge requirements or conditional waivers from waste

[2][1]As of June 2025, the March Joint Powers Authority (March JPA) will no longer exist and federal properties under the March JPA will be transferred to Riverside County. Once the transfer has been completed, the milestones and WLAs associated with the March JPA shall be transferred to Riverside County.

Draft TMDL Technical Report Errata

Table 4-10. Baseline Nutrient Watershed Runoff Loads at Jurisdictional Boundaries

Responsible Agency or Jurisdiction	Local Lake Elsinore Watershed (Zone 1)[1]		Canyon Lake Watershed (Zones 2-6)[1]		Mystic Lake Watershed (Zones 7-9)[1,2]	
	TP (kg/yr)	TN (kg/yr)	TP (kg/yr)	TN (kg/yr)	TP (kg/yr)	TN (kg/yr)
Banning	0	0	0	0	20	89
Beaumont	0	0	0	0	184	739
CAF[3]	0	0	10	15	~~44~~31	~~82~~47
Caltrans	14	104	69	489	~~53~~76	~~510~~240
City of Canyon Lake	15	67	102	490	~~80~~0	~~290~~0
Federal – DOD	0	0	78	516	~~78~~0	~~518~~0
Hemet	0	0	720	2,590	~~1,000~~307	~~3,712~~1,222
City of Lake Elsinore	441	1,654	77	290	~~23~~0	~~93~~0
March Joint Powers Authority	0	0	76	329	~~78~~0	~~329~~0
Menifee	7	23	1,220	4,519	~~1,019~~0	~~3,729~~0
Moreno Valley	0	0	1,326	5,685	~~1,346~~19	~~5,733~~47
Murrieta	0	0	25	99	~~26~~0	~~99~~0
Perris	0	0	972	2,952	~~658~~0	~~2,029~~0
City of Riverside	0	0	38	143	~~38~~0	~~143~~0
Riverside County	151	551	3,037	8,134	~~3,243~~2,404	~~8,258~~6,641
San Jacinto	0	0	3	14	~~53~~4571	~~1,083~~2,110
Wildomar	137	523	0	0	0	0
Agriculture: Irrigated	0	0	352	331	~~588~~347	~~5,493~~306
Agriculture: Non-irrigated	0	0	463	590	~~889~~293	~~8,773~~373
California DFW	0	0	48	138	~~244~~197	~~891~~559
Federal – BLM	0	0	44	114	~~117~~193	~~323~~554
Federal – National Forest	64	184	5	13	~~52~~,002	~~135~~,742
Federal – Native American Land	0	0	0	0	~~40~~136	~~283~~35
Federal – Wilderness	0	0	0	0	~~0~~389	~~91~~,120
State Land	0	0	47	122	~~53~~160	~~1,384~~56
WRCRCA	0	0	19	55	~~62~~43	~~137~~82
Baseline Watershed Load	**828**	**3,107**	**8,729**	**27,628**	**~~10,183~~27,331**	**~~31,071~~20,573**

[1] Washoff load for open space and forest lands estimated using 50th percentile of Cranston Guard Station shown in Table 4-7 above. For estimation of load reduction to meet final allocations at the 25th percentile of Cranston Guard Station, these baseline loads were necessarily adjusted for open space and forest to coincide with the 25th percentile washoff concentrations of 0.16 mg/L TP and 0.68 mg/L TN.

[2] Loads are total delivered to Mystic Lake from the Subwatershed Zones 7-9 that are assumed to entirely pass through Canyon Lake to Lake Elsinore during storm events that cause a Mystic Lake overflow

[3] If the Santa Ana Water Board determines at any time during Phase II or Phase III that any facilities regulated in Order R8-2018-0001 as CAFOs (as defined in 40 CFR 122.23(b)(2)) should instead be regulated as nonpoint sources, the wasteload allocation for such facilities shall be deemed a load allocation and shall continue to apply.

Table 6-2. Allocations for Watershed Runoff in Lake Elsinore Nutrient TMDLs

Responsible Agency or Jurisdiction[4]	Interim Milestone[1]		Final Allocation[1]	
	TP (kg/yr)	TN (kg/yr)	TP (kg/yr)	TN (kg/yr)
Local Lake Elsinore Watershed				
Wasteload Allocations[2]				
Caltrans	11	33	6	24
City of Canyon Lake	11	31	5	23
City of Lake Elsinore	323	930	162	687
Menifee	5	15	3	11
Riverside County	110	315	55	233
Wildomar	99	284	49	210
Load Allocations[2]				
Federal - National Forest	64	183	32	135
Subtotal Watershed Allocation (local watershed)	623	1,791	311	1,324
Watershed Above Mystic Lake				
Wasteload Allocations[2]				
~~Banning~~	~~14~~	~~39~~	~~7~~	~~29~~
Beaumont	134	385	67	284
~~CAF[4]~~CAF[5]	3	8	1	6
Caltrans	42	120	21	89
Hemet	192	552	96	408
Moreno Valley	10	29	5	21
Riverside County	1,187	3,414	594	2,523
San Jacinto	353	1,016	177	751
Load Allocations[2]				
Irrigated Cropland (WRCAC)	119	342	59	253
Non-irrigated Cropland	26	75	13	55
California Department of Fish and Wildlife	192	553	96	409
Federal - BLM	192	553	96	409
Federal - National Forest	1,987	5,712	993	4,222
Federal - Native American Land	113	325	57	240
Federal - Wilderness	389	1,120	195	828
State Land	157	452	79	334
Western Riverside County Regional Conservation Authority	19	53	9	39
Minus Watershed Retention[3]	~~-4,928~~ -4,915	~~-14,168~~ -14,131	~~-2,464~~ -2,458	~~-10,472~~ -10,444
Subtotal Watershed Allocation (above Mystic Lake)	201	~~579~~577	~~101~~100	~~428~~427
Load Allocation for Canyon Lake Overflow to Lake Elsinore	2,471	7,104	1,235	5,251
Total Allowable Watershed Load (WLAs and LAs)	**3,295**	**~~9,475~~9,472**	**~~1,648~~1,647**	**~~7,002~~7,001**

[1] Interim milestones are to be achieved within 20 years of the effective date of the revised TMDL and coincide with the Phase II Implementation Plan (see Section 7.2 below), final allocations are to be achieved within 30 years of the effective date of the TMDL and coincide with the Phase III Implementation Plan (see Section 7.3 below).

[2] Allocations are for watershed runoff at the jurisdictional boundary and reflect current boundaries. Revision to the TMDL and these allocations may be needed in the future if substantial changes to jurisdictional areas occur in the future (such as with attrition of agricultural land).

[3] Retention is based on assumed reference nutrient concentration in retained runoff

[4]The City of Banning discharges nutrients to the watershed but does not have a wasteload allocation, pending results from Task 9 to define and identify minor source contributors. The absence of assigned milestones or a wasteload allocation to the City should not be considered a WLA of zero. The TMDL assumes that the current loading from this area will continue with insignificant to no net increase.

Table 6-7. Summary of Milestones, WLAs and LAs for Major Categories of Nutrient Sources to Canyon Lake from Subwatersheds below Mystic Lake

Source	Phase II Milestone (kg/yr as 10-yr running average)		Phase III Final Allocation (kg/yr as 10-yr running average)	
	TP	TN	TP	TN
MS4 Jurisdiction Runoff (WLA)	3,939	11,326	1,970	8,371
Caltrans Jurisdiction Runoff (WLA)	52	151	26	111
March JPA Jurisdiction Runoff (WLA)	53	153	27	113
March ARB Jurisdiction Runoff (WLA)	55	158	28	117
CAF (WLA)[1]	1	2	0.4	2
Irrigated Agriculture (LA)	105	302	53	223
Non-Irrigated Agriculture (LA)	41	119	21	88
Other State/Federal/Tribal Jurisdictions (LA)	147	421	73	311
Reference Watershed Retention[2]	- 590	- 1695	- 295	- 1253
Subtotal Watershed Allocation (below Mystic Lake)	3,804	10,937	1,902	8,084
Atmospheric Deposition (LA)	23	1,406	23	1,406
Sediment Nutrient Flux (LA)	1,190	3,955	683	2,741
Canyon Lake TMDL	**5,017**	**16,298**	**2,608**	**12,230**

[1] If the Santa Ana Water Board determines at any time during Phase II or Phase III that any facilities regulated in Order R8-2018-0001 as CAFOs (as defined in 40 CFR 122.23(b)(2)) should instead be regulated as nonpoint sources, the wasteload allocation for such facilities shall be deemed a load allocation and shall continue to apply

[2] Retention is based on assumed reference nutrient concentration in retained runoff.

Table 6-8. Summary of Milestones, WLAs and LAs for Major Categories of Nutrient Sources to Lake Elsinore

Source	Phase II Milestone (kg/yr as 10-yr running average)		Phase III Allocation (kg/yr as 10-yr running average)	
	TP	TN	TP	TN
Local Lake Elsinore Watershed				
MS4 Jurisdiction Runoff (WLA)	548	1,575	274	1,164
Caltrans Jurisdiction Runoff (WLA)	11	33	6	24
Other State/Federal/Tribal Jurisdictions (LA)	64	183	32	135
Subtotal Watershed Allocation (local watershed)	623	1,791	311	1,324
Watershed Above Mystic Lake				
MS4 Jurisdiction Runoff (WLA)	~~1,8901,879~~	~~5,4345,395~~	~~945938~~	~~4,0163,987~~
Caltrans Jurisdiction Runoff (WLA)	42	120	21	89
CAF (WLA) [1]	3	8	1	6
Irrigated Agriculture (LA)	119	342	59	253
Non-Irrigated Agriculture (LA)	26	75	13	55
Other State/Federal/Tribal Jurisdictions (LA)	3,050	8,769	1,525	6,481
Minus Reference Watershed Retention[2]	~~-4,926~~-4,915	~~-14,168~~-14,131	~~-2,464~~-2,458	~~-10,472~~-10,444
Subtotal Watershed Allocation (above Mystic Lake)	201	579	101	428
Canyon Lake to Lake Elsinore (LA)	2,471	7,104	1,235	5,251
Supplemental Water	3,317	9,535	1,658	7,048
Atmospheric Deposition	156	9,682	156	9,682
Sediment Nutrient Flux	15,227	104,559	10,221	91,232

Table 6-8. Summary of Milestones, WLAs and LAs for Major Categories of Nutrient Sources to Lake Elsinore

Source	Phase II Milestone (kg/yr as 10-yr running average)		Phase III Allocation (kg/yr as 10-yr running average)	
	TP	TN	TP	TN
Lake Elsinore TMDL	~~21,895~~21,994	~~133,250~~133,248	~~13,683~~13,683	~~114,964~~114,963

[1] If the Santa Ana Water Board determines at any time during Phase II or Phase III that any facilities regulated in Order R8-2018-0001 as CAFOs (as defined in 40 CFR 122.23(b)(2)) should instead be regulated as nonpoint sources, the wasteload allocation for such facilities shall be deemed a load allocation and shall continue to apply.

[2] Retention is based on assumed reference nutrient concentration in retained runoff.

Table 6-9. Comparison of Total WLAs and LAs for External Nutrient Sources Between the Proposed Revised TMDLs and Existing 2004 TMDLs

Total Allowable External Loads[1]	Total Phosphorus (kg/yr)			Total Nitrogen (kg/yr)		
	2004 TMDL	TMDL Revision - Interim	TMDL Revision - Final	2004 TMDL	TMDL Revision – Interim	TMDL Revision - Final
Total Canyon Lake	3,845	3,804	1,902	22,268	10,937	8,084
Canyon Lake to Lake Elsinore (LA)	2,770	2,471	1,235	20,774	7,104	5,251
Lake Elsinore[2]	6,922	6,612	3,306	29,953	19,009	14,050

[1] Total allowable external load for watershed and supplemental water is the TMDL minus allocations for internal sources, e.g., sediment nutrient flux and atmospheric deposition

[2] TMDL includes the LA for Canyon Lake overflows