LECL TASK FORCE MEETING

FEBRUARY 27, 2024

PURPOSE OF TODAY'S MEETING

- Identify Key Questions for Task Force Discussion
- Provide overview of Basin Plan Amendment language
- Explain Allocations and Compliance Demonstration Options
- Identify Remaining Questions
- Establish Timing and Approach for Resolving Any Outstanding Questions

APPROACH FOR TODAY'S DISCUSSION

- We will provide an overview of questions being posed to the Task Force that we believe need Task Force input for resolution.
- We will ask Task Force members to identify additional questions for today's discussion.
- For each question we identified, we will provide information to "set the stage" for the discussion.
- We intend to take each question in turn before moving to the next. Some questions may be grouped if related.
- ***Goal: Receive direction from Task Force to resolve outstanding questions/issues; or, agree on approach and timetable for resolving.***

Overview of Questions for Task Force Discussion

- How should the Waste Load and Load Allocations be expressed in the TMDL?
    - By sector?
    - By jurisdiction?
- Does the Task Force support the Permit Incorporation Language for MS4 permits and Ag Order WDRs? Input on other sectors?
- Does the Task Force understand and support the Compliance Demonstration Options?
- When should the CNRPs be updated - before TMDLs incorporated into permit or after? How much time is needed

Cont. Overview of Questions

- Does the Task Force agree that Task 7 is the appropriate task for considering the impacts from increased TDS that may result from use of supplemental water, which may interfere with Lake Elsinore's ability to meet numeric targets?
  - Evaluate site-specific objectives for TDS?
  - Evaluate need for revised criteria/numeric targets due to increased TDS?

- Does the Task Force agree with the description and timing of Task 9 – special study for determining de minimis sources?
- For the monitoring program update, is 6 months adequate? Also, what should be characterized as part of the monitoring program versus a special study?

Other Key Questions for Discussion Today

Process for providing comments: Draft Basin Plan Amendment Language

- Format: Revisions reflected in red text, either underlined (new) or stuck-out (existing being deleted); manually inserted to distinguish from track change suggestions from Task Force, etc.
- Comments and Suggestions: Please use track change and comments to help distinguish between manual changes that would be part of the Santa Ana Water Board's resolution.
- Timing: Hope to receive comments today; comments from today will be incorporated into next revised version; provide any other proposed comments/suggestions by March 5, 2024.
- Circulation of Revised Version: By March 12, 2024.

Structure of Basin Plan Amendment Language

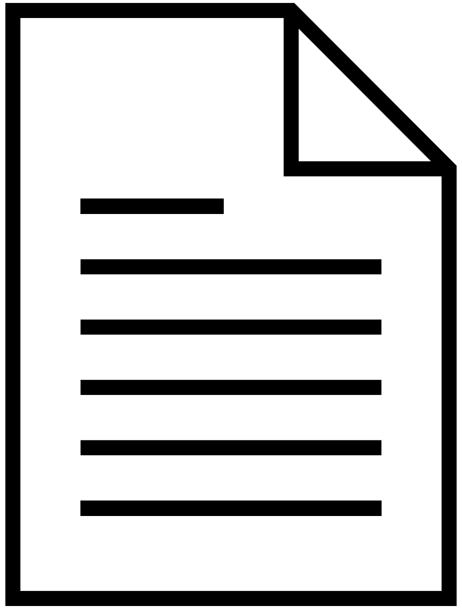
- Part A – **Problem Statement** – general overview
- Part B – **Nutrient TMDL Numeric Targets** – Interim & Final Targets expressed as cumulative distribution functions (CDFs)
- Part C – **CDF Goals for TDS in Lake Elsinore** – Expressed as goals, not Numeric Targets, not for regulatory controls, informational only
- Part D – **Source Analysis** – Summary of information from Technical Report
- Part E – **Linkage Analysis** – Summary of information from Technical Report
- Part F - **TMDLs, Wasteload Allocations, Load Allocations & Compliance Dates**
- Part G – **Offset Credits** – Identifies Santa Ana Water Board support for offset and trading programs; references implementation program tasks for periodic review of such programs

Structure of Basin Plan Amendment Language

- Part H – **Margin of Safety**
- Part I – **Seasonal Variations/Critical Conditions**
- Part J – **Incorporation of TMDLs into NPDES permits, WDRs, etc.**
- Part K – **Demonstrating Compliance**
- Part L – **TMDL Implementation**
  - Phase 2 – Years 1 through 20 after effective date of revised TMDLs
  - Phase 3 – Years 21 through 30 after effective date of revised TMDLs
- Part M – **Monitoring Program**

Overview for Question re: Permit Incorporation Language

- Addresses incorporation by type of permit
- Draft language provided for MS4 Permits and Ag Order
- Other categories to be provided soon
- Santa Ana Water Board permitting staff reviewing concurrently
- MS4 language consistent with Newport Bay Selenium TMDL language



MS4 Permits

- 2024 TMDLs provide for BMP-based compliance
- Development & Implementation of Revised CNRP (or equivalent Watershed Management Plan)
- Time for compliance specified
  - Phase 2 – 20 years from effective date
  - Phase 3 – 30 years from effective date
- Permit writers directed to express WQBELs as BMP-based compliance measures
- Allows use of Offsets

Ag General WDRs

- WDRs are the AgNMP
- Comply with revised Nutrient TMDLs by:
  - Implementing & improving management practices
  - Evaluating effectiveness of management practices
  - Taking action to improve management practices
- Allows use of Offsets

Questions to Task Force

- 1. Is this language specific enough and does it capture Task Force member preferences with respect to incorporation into permits?
- 2. Does it address concerns expressed previously by MS4 and Ag Order permittees?
- 3. Our further clarifications necessary?
- 4. For non-MS4 and non-Ag Order permittees, are their additional thoughts and considerations to be considered when preparing additional language?
- 5. For the Santa Ana Water Board staff, is this language specific enough to provide direction to permit writers in the future?

Overview for Question re: Timing of CNRP update

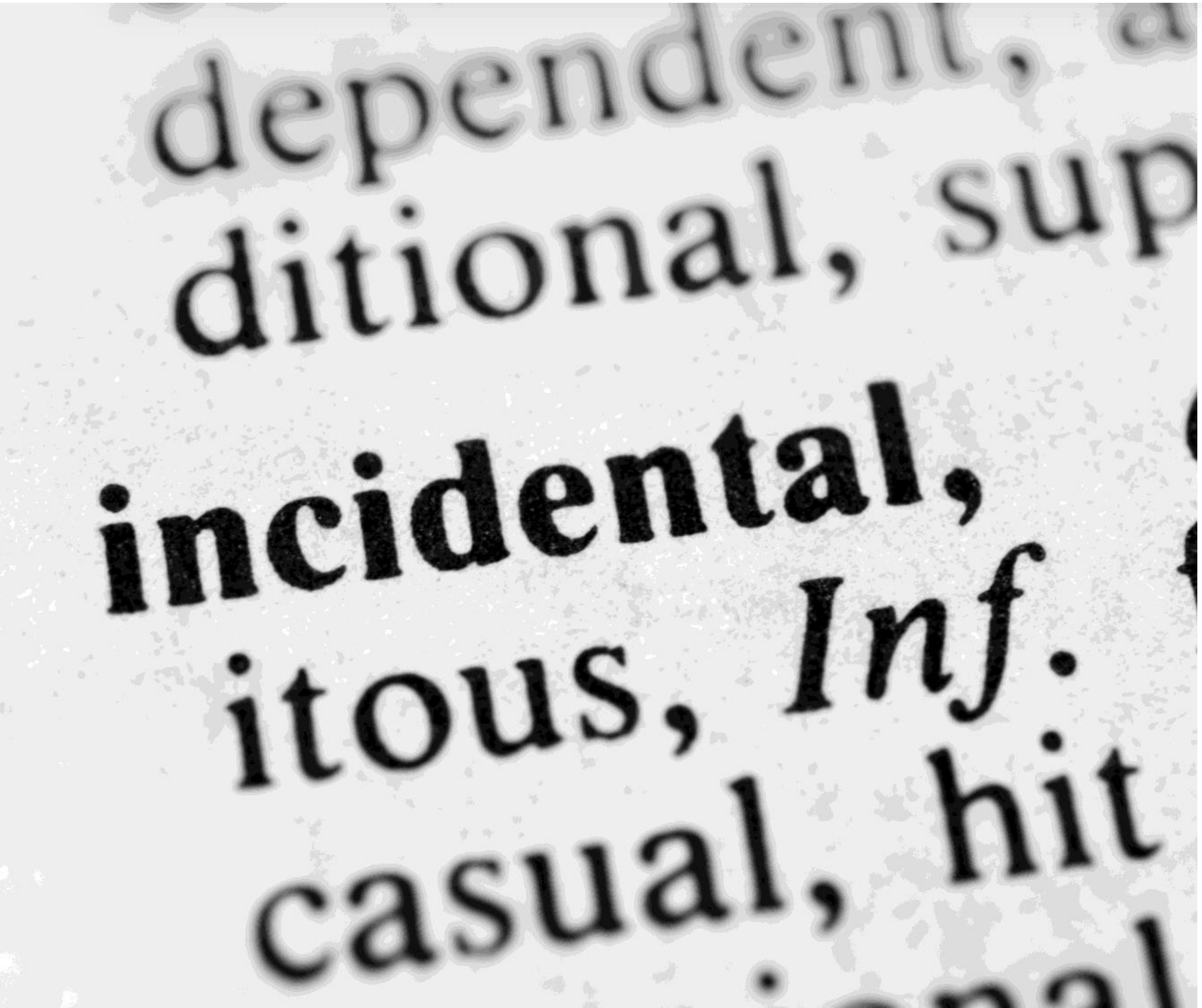
Task 3 – Revise Existing Watershed Implementation Plans

CNRP (or equivalent Watershed Management Plan): Submit revised CNRP (or Equivalent Watershed Management Plan) to the Regional Board within one (1) year of the 2024 TMDLs being incorporated into the MS4 permit; continue to implement existing CNRP until revised CNRP (or equivalent Watershed Management Plan) is approved by the Regional Board.

Questions to Task Force

- Should the CNRP be updated before or after incorporation into the MS4 permit?
- Should the amount of time given be from the effective date of the TMDL, or the date of incorporation into the MS4 permit?
- What is an appropriate amount of time?
- Should there be reference to an equivalent Watershed Management Plan?
- Should the CNRP be approved by the Santa Ana Water Board, or the Santa Ana Water Board’s Executive Officer?

Overview for Question re: De Minimis Special Study



Task 9 – Special Study: Define and Identify De Minimis Sources and Identify Appropriate Level of TMDL Obligations for Such Sources

- Evaluate TP and TN contributions from minor sources
- Determine if there is a certain level that should be defined as de minimis
- Identify TMDL obligations for de minimis sources – if any
- Complete study within 3 years of effective date of TMDL, submit a report with recommendations to Santa Ana Water Baord

Questions to Task Force

- Do Task Force members support the Special Study?
- Is the scope of the Special Study as described in the Basin Plan the correct scope?
- Do the Task Force members agree that the Special Study should be conducted by the Task Force?
- Is the time for conducting the Special Study and submitting the report to the Santa Ana Water Board (i.e., within 3 years from TMDL effective date) the appropriate amount of time?
- Is additional clarification or amendments needed?

Overview for Question re: Monitoring Program Update

- Table 6-9u outlines required elements for each lake

Waterbody	
San Jacinto Watershed	• Cranston Guard station • Add 2 new locations below reference subwatersheds • Reduce storm mobilization October to December (from 1 inch to .5 inch in 24-hour period)
Canyon Lake	• Discontinue afternoon water column profiles • Utilize fixed depth Sondes and field monitoring events • Add station CL09 for full analyte • Add total and dissolved aluminum • Sentinel-2 satellite imagery
Lake Elsinore	• Discontinue afternoon water column profiles • Utilize EVMWD's fixed depth Sondes and field monitoring events • Sentinel-2 satellite imagery

Questions to Task Force

- Is 6 months from the effective date of the TMDL an adequate amount of time to prepare an updated monitoring program?

- Should Cranston Guard stationing monitoring and two additional locations be part of Task 11, or the ongoing monitoring program?

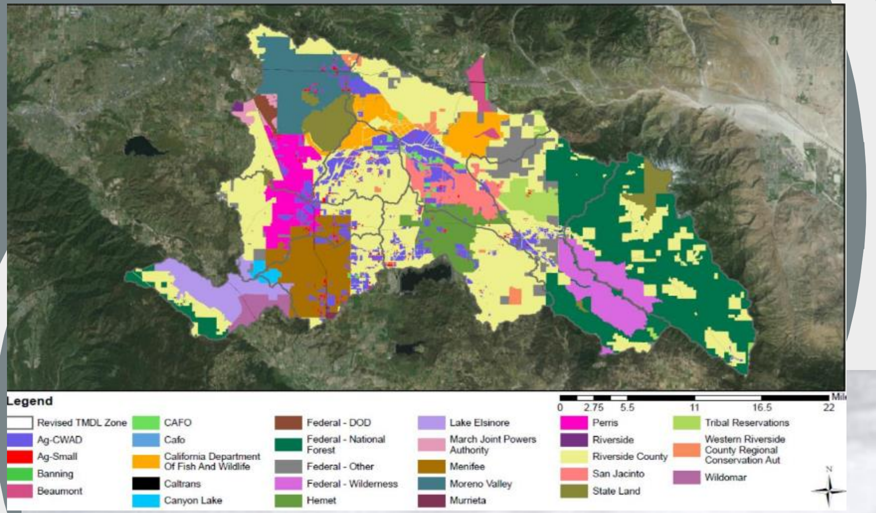
Next Steps

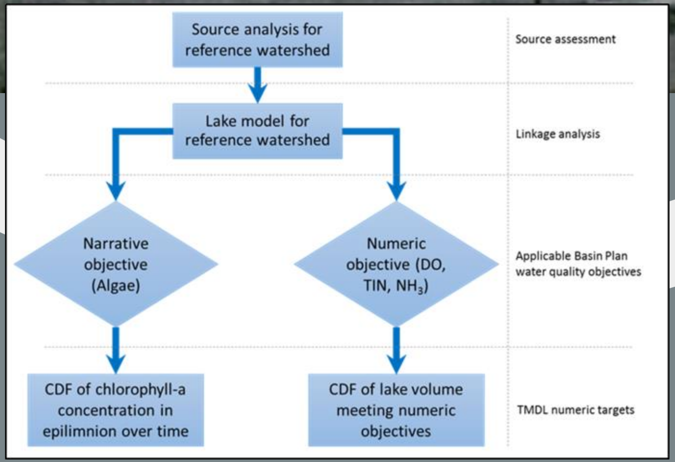
- Comments on Basin Plan Amendment language
- Revised Basin Plan Amendment language
- Finalizing Technical TMDL Report
- AB 2108 compliance efforts
- Santa Ana Water Board workshop
- Public Review and Comment Period
- Santa Ana Water Board consideration

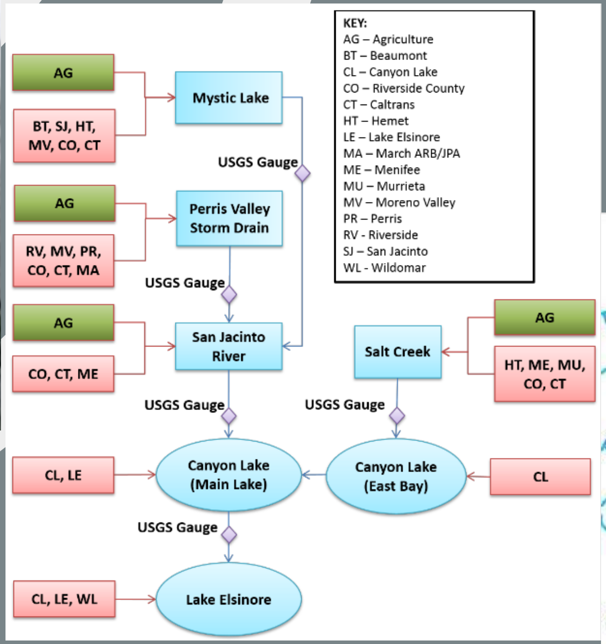
LECL TMDL Task Force Update to TMDL Revision

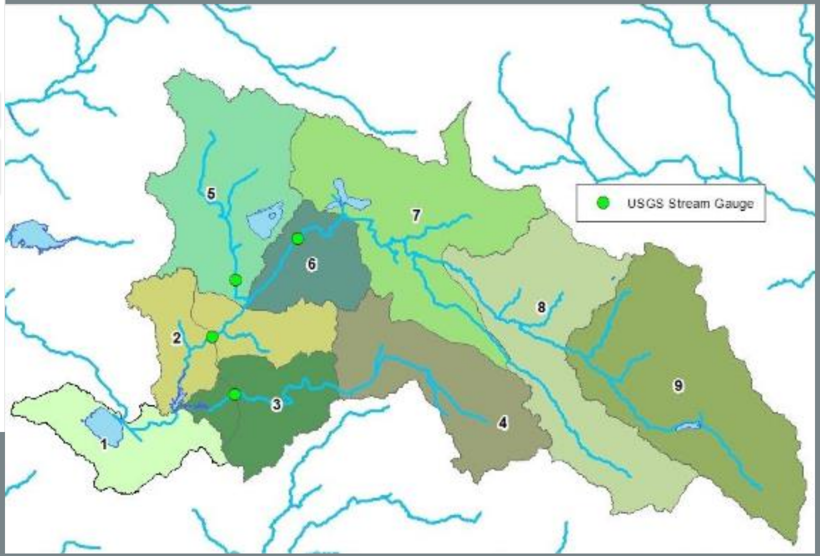
Supporting slides for Stakeholder Workshop

February 27, 2024





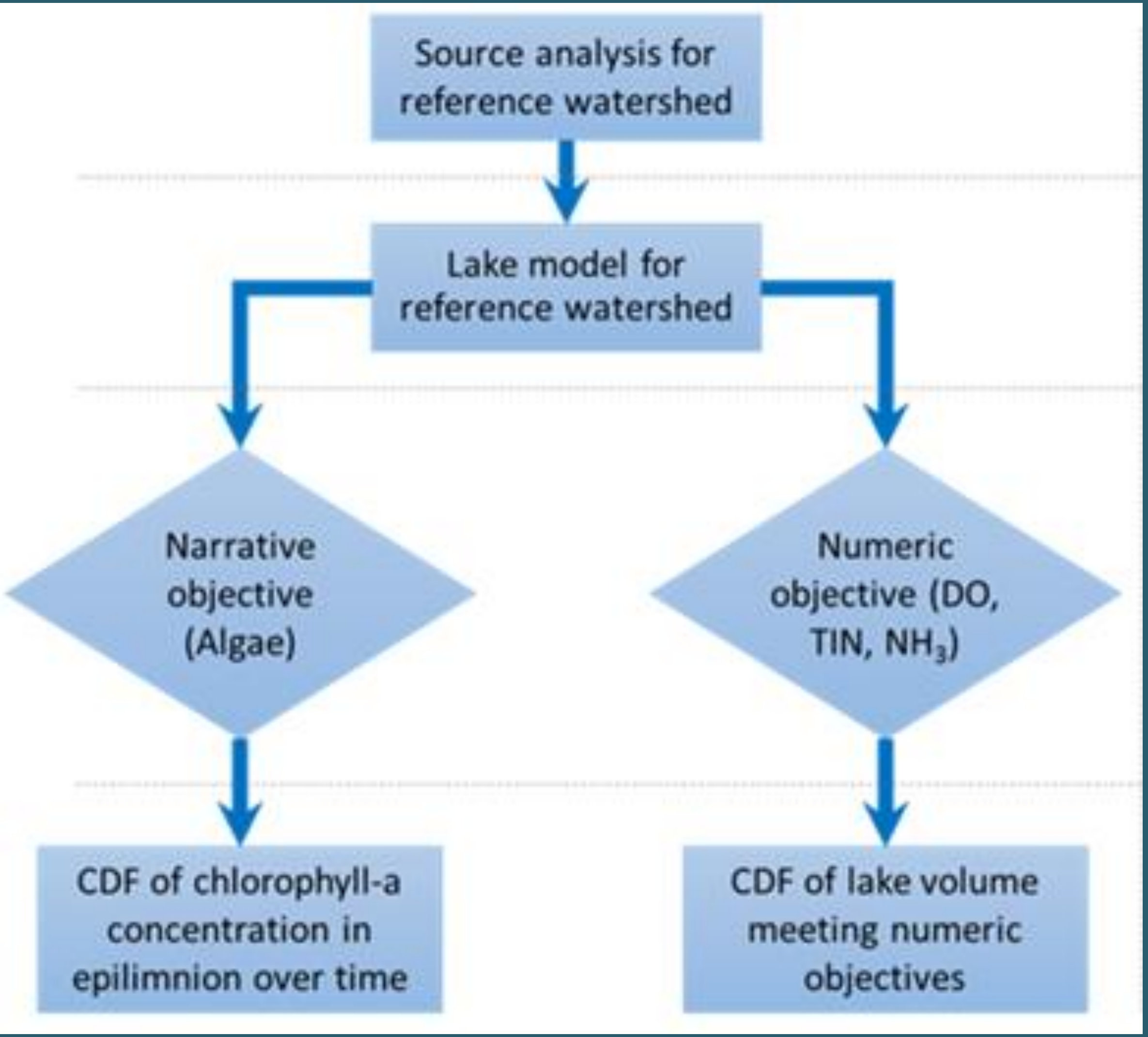




Agenda

- Review of TMDL revision
- Compliance demonstration
- Wet lake management strategy

Review TMDL Revision



Reasons to Revise TMDL

- Account for multidecadal variability in lake level and watershed nutrient loadings
- Account for evapo-concentration of TDS and nutrients in linkage analysis
- Increase confidence in linkage between allocations and targets
- Consider a reference watershed approach with dynamic targets
- Set appropriate targets for DO in lake bottom waters
- Years of flow gauge, watershed nutrients, and lake WQ data

Allocations based on a reference watershed

- Reference nutrient concentration assumption based on data collected in San Jacinto River at Cranston Guard Station (2001-2010)
- Future special study to collect more data from Cranston and other reference sites

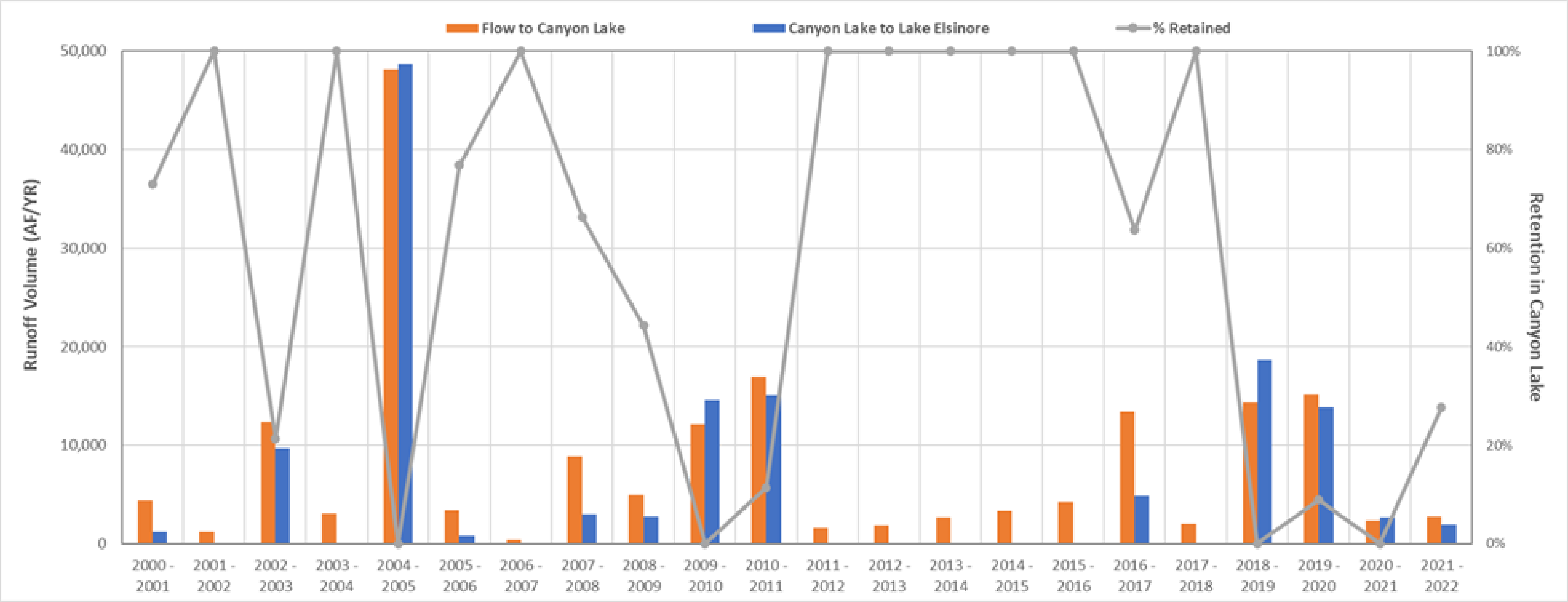
Table 3-2. Summary Statistics from Reference Watershed Site, San Jacinto River at Cranston Guard Station

Metric	TP (mg/L)	TN (mg/L)
Range of Samples	0.05 – 48.00	0.51 – 27.78
Range of Event Means[1]	0.11 – 10.13	0.58 – 7.09
25th Percentile of Samples	0.16	0.68
25th Percentile of Event Means[1]	0.22	1.00
Median of Samples	0.32	0.92
Median of Event Means[1]	0.39	1.15
75th Percentile of Samples	0.73	1.50
75th Percentile of Event Means[1]	1.07	2.62

[1] Number of samples per event varies

Allocations for watershed

- Watershed allocations not parsed by downstream lake segment in 2023 update
- Co-mingled load at downstream lakes addressed with offset program, as needed



Significant year to year variability in hydrologic retention in Canyon Lake. Watershed allocations not attributed to downstream lake no longer presumes this retention factor

Allocations for watershed

- Expressed as mass by source category or individual jurisdiction? as concentration?

Lake	Interim Allocation (kg/yr)		Final Allocation (kg/yr)	
	TP	TN	TP	TN
MS4 Jurisdiction Runoff (WLA)	7,825	22,498	3,913	16,629
Caltrans Jurisdiction Runoff (WLA)	131	377	66	279
March JPA Jurisdiction Runoff (WLA)	65	188	33	139
March ARB Jurisdiction Runoff (WLA)	68	195	34	144
CAFO (WLA)	3	10	2	7
Irrigated Agriculture (LA)	268	772	134	571
Non-Irrigated Agriculture (LA)	81	232	40	171
Other State/Federal/Tribal (LA)	3,904	11,223	1,952	8,295
Total Watershed Allocation	12,346	35,495	6,173	26,235

Table 6-1. Allocations for Watershed Runoff in Lake Elsinore and Canyon Lake Nutrient TMDLs

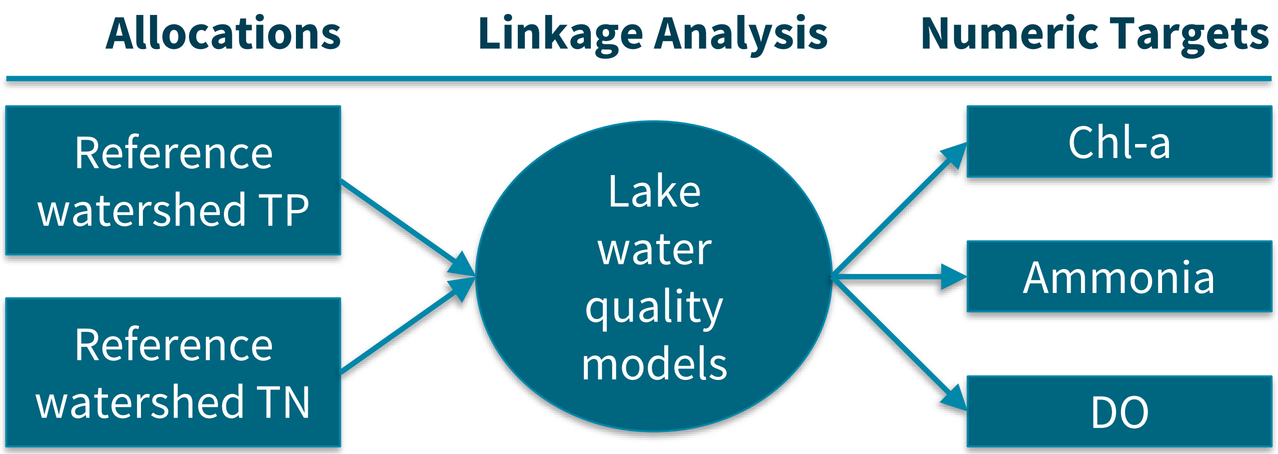
Responsible Agency or Jurisdiction	Interim Milestone[1]		Final Milestone[1]	
	TP (kg/yr)	TN (kg/yr)	TP (kg/yr)	TN (kg/yr)
Wasteload Allocations[2]				
Banning	17	49	8	36
Beaumont	166	477	83	352
CAFO	3	10	2	7
Caltrans	131	377	66	279
City of Canyon Lake	102	294	51	217
Federal – Department of Defense	68	195	34	144
Hemet	796	2,289	398	1,692
City of Lake Elsinore	470	1,352	235	999
March Joint Powers Authority	65	188	33	139
Menifee	942	2,708	471	2,002
Moreno Valley	1,089	3,132	545	2,315
Murrieta	20	56	10	42
Perris	620	1,783	310	1,318
City of Riverside	32	91	16	67
Riverside County	3,010	8,654	1,505	6,396
San Jacinto	440	1,266	220	936
Wildomar	121	347	60	256
Load Allocations[2]				
Agriculture: Irrigated	268	772	134	571
Agriculture: Non-irrigated	81	232	40	171
California Department Fish & Wildlife	288	827	144	612
Federal – Bureau of Land Management	274	788	137	583
Federal - National Forest	2,460	7,074	1,230	5,228
Federal - Native American Land	135	389	68	288
Federal - Wilderness	466	1,340	233	991
State Land	234	674	117	498
Western Riverside County Regional Conservation Authority	45	129	23	96
Total Allowable Watershed Load (WLAs and LAs)	**12,346**	**35,495**	**6,173**	**26,235**

[1] Interim allocations are to be achieved within 20 years of the effective date of the revised TMDL and coincide with Phase 2 of the program of implementation (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 3 program of implementation (see Section 7.4 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). These allocations support jurisdictions that opt to use compliance demonstration approach 3 to demonstrate load reductions within the watershed only (see Section 7.3 below).

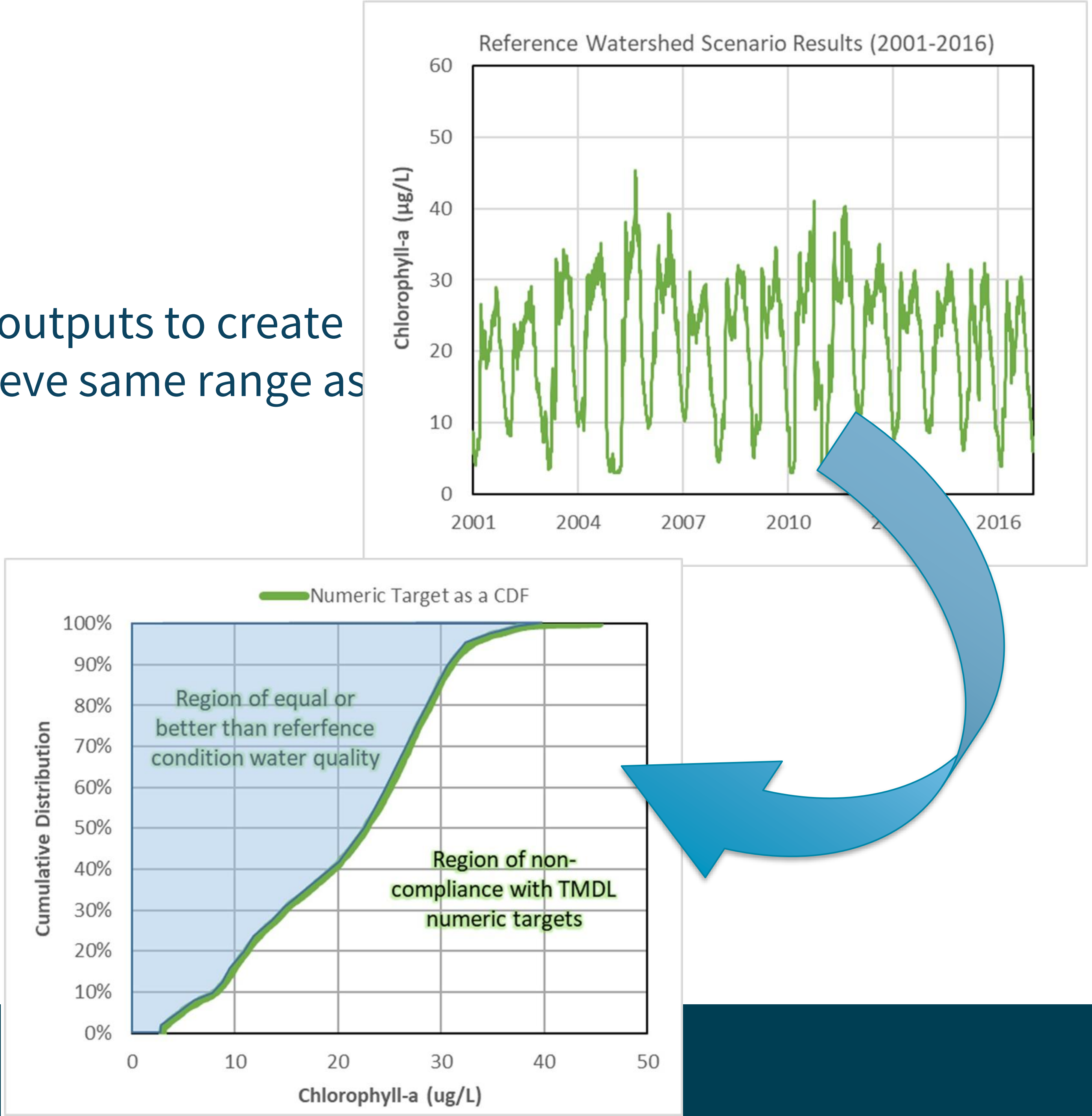
Linkage Analysis

- Calibrated model simulate lake water quality response for reference watershed nutrient loads (i.e. allocations for TP and TN) to create the numeric targets



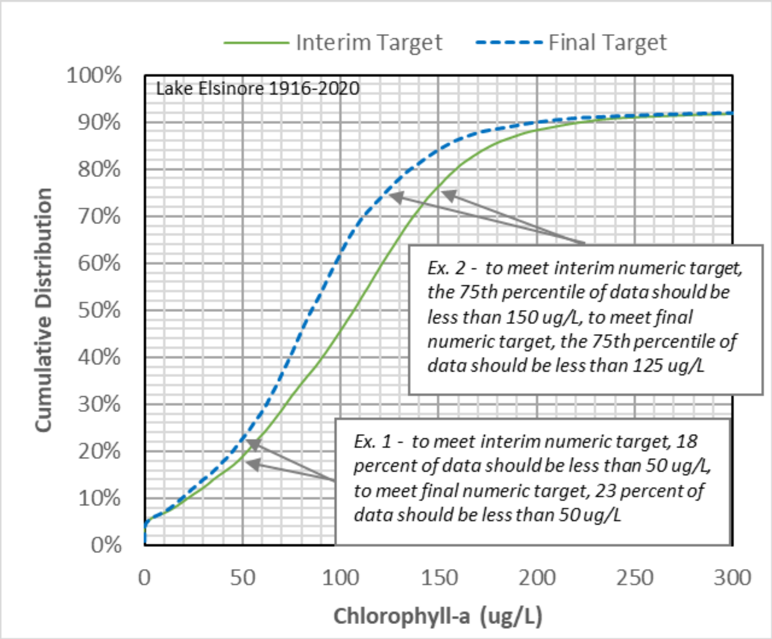
Numeric Targets

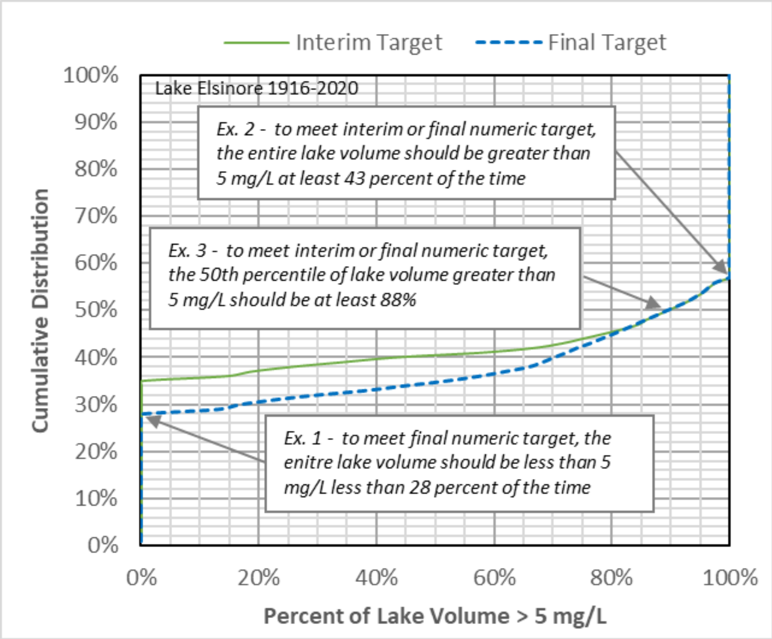
- Rank order temporal lake mode outputs to create CDF for future conditions to achieve same range as outputs based
- Current lake basins
- Historical hydrology
- Assumed reference nutrients
- No supplemental water
- No in-lake nutrient controls

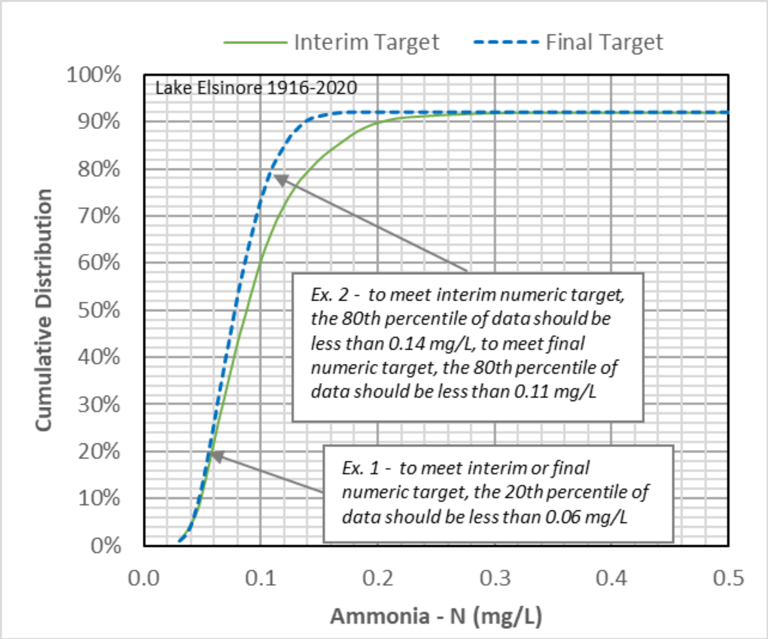


Section 3 Numeric Targets

- CDF Targets Updated – Lake Elsinore



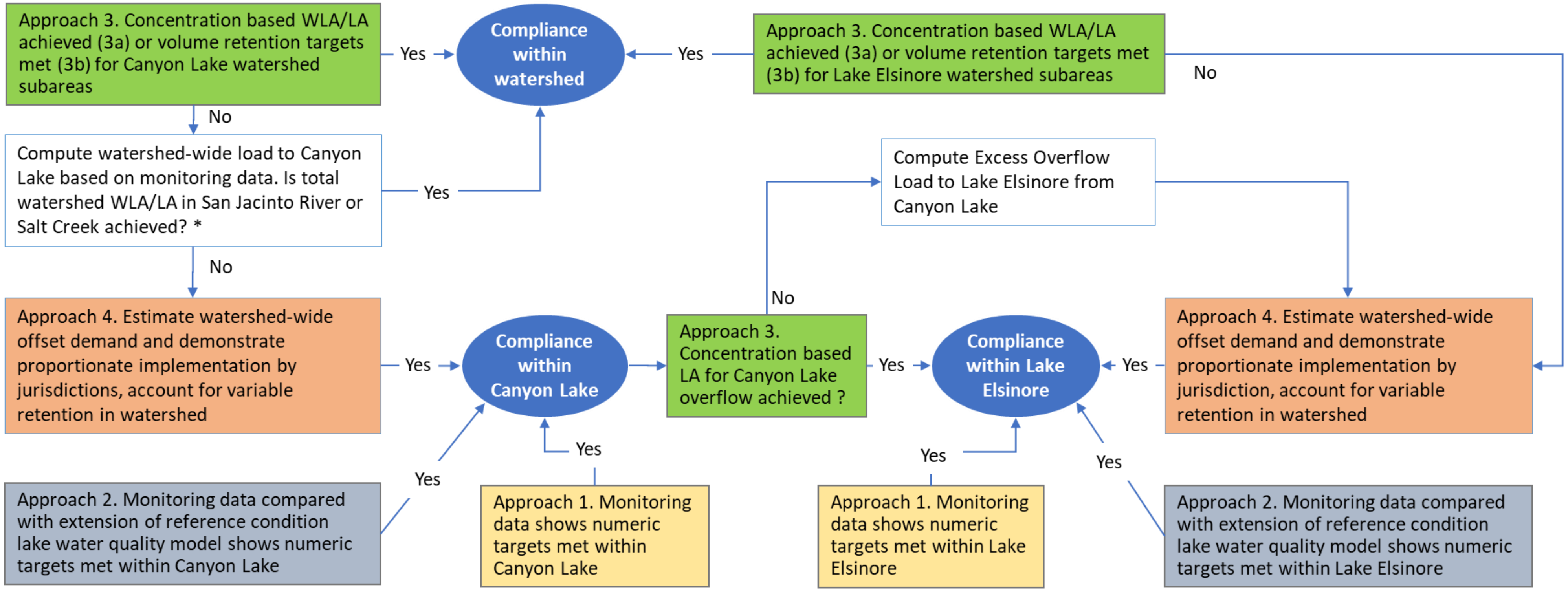




Compliance Demonstration

Compliance Demonstration Pathways

- Guidance for multiple pathways for future (2036-2045) compliance demonstrations



* Partial compliance within the watershed can be achieved if San Jacinto River or Salt Creek meet allocations. The non-compliant watershed would then follow the path to participate in an offset program involving regional in-lake controls

Compliance Demonstration Numeric Targets (Approach 1)

- Example: Canyon Lake DO profiles over 10-year compliance period
- In-lake water quality equal or better than numeric target CDF in Tech Report
- All stakeholders in compliance

Step 1. Calculate fraction of Main Lake volume with DO > 5mg/L

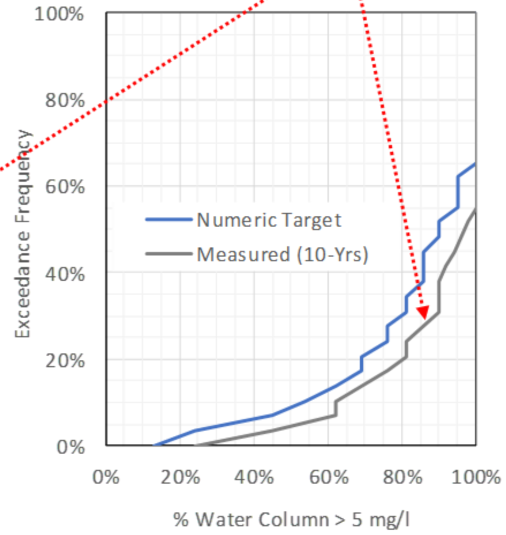
Example for Profile 1 of 60

Water Surface Elevation (ft msl)	Depth of Water (m)	Profile 1 DO Readings (mg/L)	Cumulative Volume (AF)	Incremental Volume (AF)	Volume with DO > 5 mg/L
1382	14.0	9.0	6,537	829	829
1379	13.0	8.5	5,709	766	766
1376	12.0	8.0	4,943	705	705
1373	11.0	8.0	4,238	645	645
1370	10.0	7.0	3,593	587	587
1367	9.0	7.0	3,007	530	530
1364	8.0	6.5	2,477	475	475
1361	7.0	6.0	2,002	421	421
1358	6.0	6.0	1,581	369	369
1355	5.0	5.5	1,212	318	318
1352	4.0	4.5	893	269	0
1349	3.0	4.0	624	221	0
1346	2.0	3.0	403	175	0
1343	1.0	2.5	227	227	0
			Volume (AF)	6,537	5,644
			Fraction above 5 mg/L DO	86%	

Step 2. Repeat step 1 for all 60 profiles

Step 3. Plot as CDF

Exceedence Frequency	Fraction of Lake Volume with DO > 5 mg/L	Reference CDF (Numeric Target)
0%	24%	13%
3%	45%	24%
7%	62%	45%
10%	62%	54%
14%	69%	62%
17%	76%	69%
21%	81%	69%
24%	81%	76%
28%	86%	76%
31%	90%	81%
34%	90%	81%
38%	90%	86%
41%	92%	86%
45%	94%	86%
48%	96%	90%
52%	98%	90%
55%	100%	95%
59%	100%	95%
62%	100%	95%
66%	100%	100%
69%	100%	100%



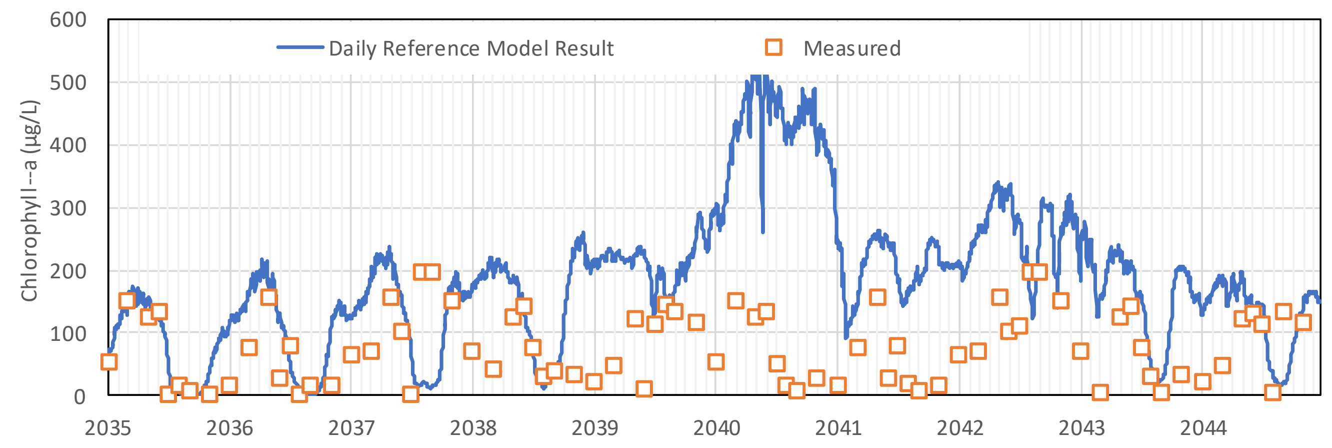
Compliance √

Compliance Demonstration Numeric Targets (Approach 2)

- Example: Lake Elsinore chlorophyll-a over 10-yr compliance period
- In-lake water quality equal or better than extended reference watershed model for same period
  - AEM3D in Canyon Lake or GLM in Lake Elsinore with 2035-2045 hydrologic inputs
- All stakeholders in compliance

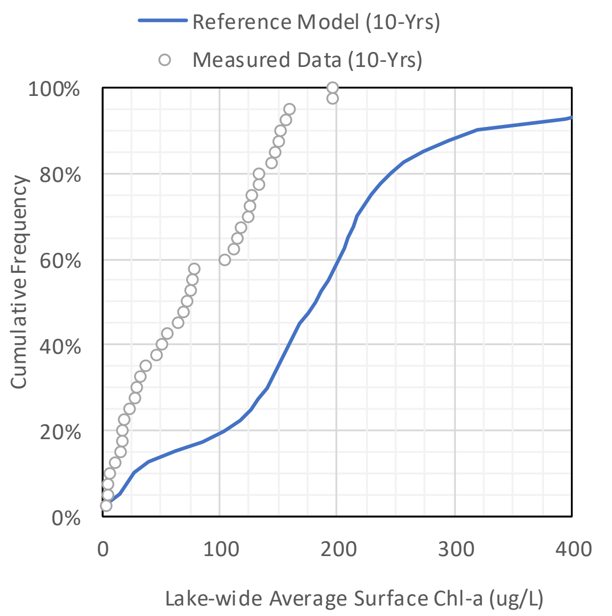
Step 1. Run lake water quality model for preceding five year period, output daily lakewide average surface chlorophyll-a concentration

Step 2. Compile chlorophyll-a from monitoring program dataset



Step 3. Plot measured and modeled chlorophyll-a (ug/L) as CDF

%ile	Observed Data	Reference Model	%ile	Observed Data	Reference Model
3%	4	3	51%	131	146
5%	5	14	54%	134	149
8%	5	21	56%	134	152
10%	7	27	59%	144	154
13%	11	40	62%	147	157
15%	16	63	64%	150	159
18%	18	86	67%	151	162
20%	18	103	69%	152	165
23%	20	118	72%	155	169
25%	24	126	74%	157	172
28%	28	133	77%	158	175
30%	30	140	79%	179	181
33%	33	145	82%	179	188
35%	38	150	85%	186	194
38%	46	155	87%	188	200
40%	51	159	90%	196	203
43%	55	163	92%	197	206
45%	65	168	95%	200	210
48%	70	175	97%	204	213
50%	72	182	100%	216	222

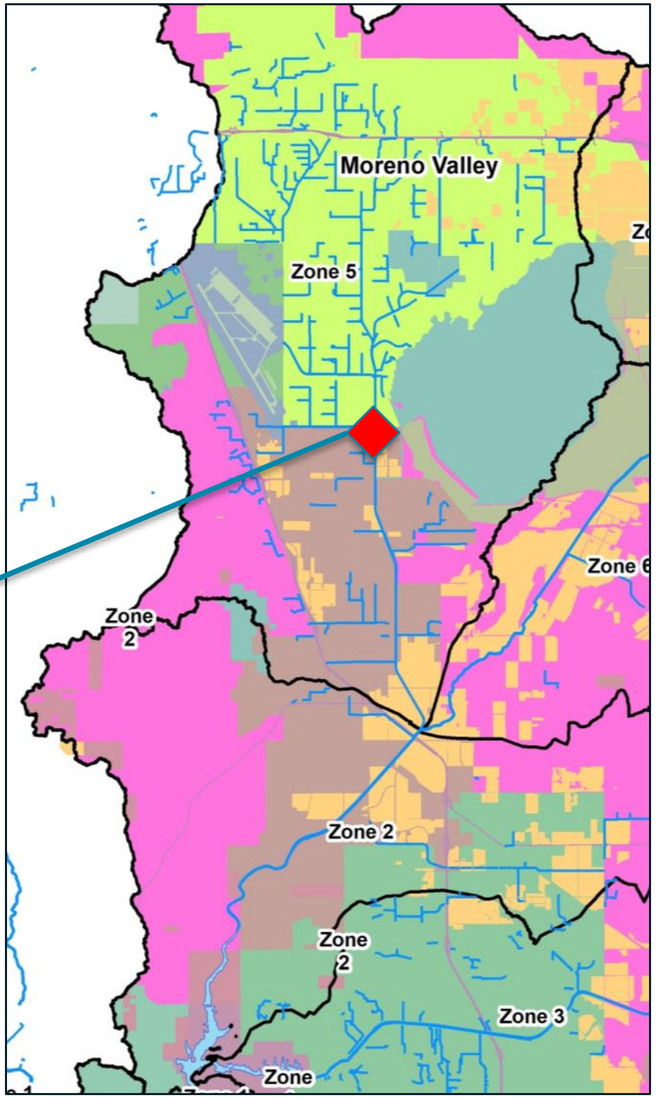


Compliance √

Compliance Demonstration External Load (Approach 3a)

- Given 10 wet weather samples in Perris Valley Channel downstream of Moreno Valley

Step 1. Compile 10 years of wet weather compsoite sample concentrations		
Year	Storm 1 TP (mg/L)	Storm 1 TN (mg/L)
Year 1	0.27	0.42
Year 2	0.20	1.02
Year 3	0.18	0.40
Year 4	0.16	0.57
Year 5	0.10	2.10
Year 6	0.11	0.38
Year 7	0.33	1.20
Year 8	0.29	0.71
Year 9	0.42	0.95
Year 10	0.68	1.32
Step 2. Compute 10-yr Average	**0.27**	**0.91**
Step 3. Determine whether one or both nutrients are reduced to reference concentration	**Compliance √**	**Compliance √**



Compliance Demonstration External Load (Approach 3b)

- Volume retention to return load from any drainage area to be equal or less than a zero impervious reference watershed by retaining runoff volume
- How much volume to retain?
  - Function of imperviousness in drainage area
  - Land use based nutrient washoff concentration

Reference Load = (Volume) * (Concentration)

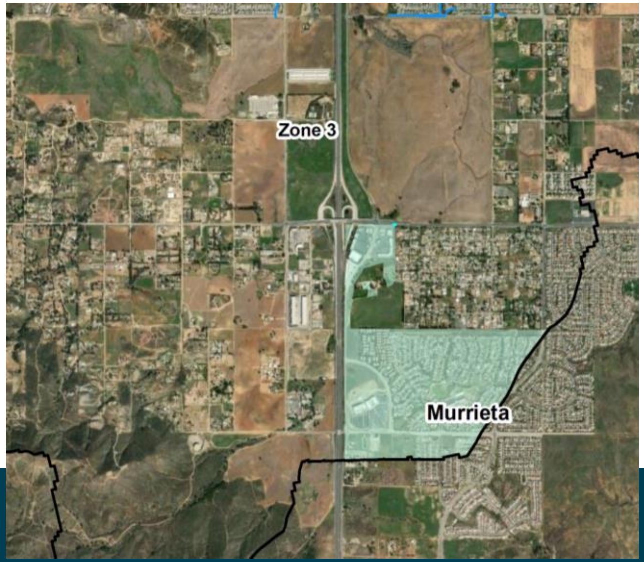
Uncontrolled Load ↑ = (Volume) ↑ * (Concentration) ↑

Controlled Load = (Volume) ↓ * (Concentration) ↑

- $V_{capture} = (V_{DA} - V_{REF}) + (V_{REF} * (1 - C_{REF} / C_{DA}))$, where:
  - $V_{CAPTURE}$ = Annual runoff capture to be demonstrated (AFY)
  - V_{DA} = Annual runoff from developed drainage area = DA (acres) * RC * P (in/yr) /12; Runoff Coefficient (RC) = 0.041* e ^ (3.1*IMP%)
  - V_{REF} = Annual runoff from a zero impervious reference drainage area = DA (acres) * RC * P (in/yr) /12; Runoff Coefficient (RC) = 0.041
  - C_{REF} = Reference nutrient concentration (Interim 0.32 mg/L TP, 0.92 mg/L TN; Final 0.16 mg/L TP, 0.68 mg/L TN)
  - C_{DA} = Nutrient concentration of upstream drainage area (see Tables 4-8 and 4-9)

Compliance Demonstration External Load (Approach 3b)

- Example: City of Murrieta in Salt Creek watershed
- Compliance with retention of 37 AFY or 85% of annual runoff volume
- Similar to typical post-construction BMP sizing



Step 1. Compute Excess Volume from Impervious Areas

Condition	Drainage Area	Annual Rainfall (in/yr)	Impervious %	Drainage Area Volume (AF)
Reference Condition	377	11	0%	14.16
Murrieta	377	11	36%	43.88
				29.72

Step 2. Compute Ratio of Reference / Developed Nutrient Washoff

	TP (mg/L)	TN (mg/L)
Reference Condition	0.32	0.92
Murrieta (LU weighted EMCs)	0.50	1.93
Ratio	0.63	0.48

	AFY Retention to Meet Reference TP	AFY Retention to Meet Reference TN
Step 3. Compute Volume Capture to Achieve Reference Condition Nutrient Load (Pervious Volume * (1-Ratio in Step 2)	**5.17**	**7.41**

	AFY of Retention	% of Drainage Area Volume
Step 4. Compute Total Volume to be Captured: Step 1 + Step 3 (max of TP or TN)	**37.13**	**85%**

Compliance Demonstration External Load (Approach 3b)

- Example: 100-acre irrigated cropland field

Step 1. Compute Excess Volume from Impervious Areas				
Condition	**Drainage Area**	**Annual Rainfall (in/yr)**	**Impervious %**	**Drainage Area Volume (AF)**
Reference Condition	100	11	0%	3.76
Irrigated Cropland	100	11	0%	3.76
				0.00

Step 2. Compute Ratio of Reference / Developed Nutrient Washoff		
	TP (mg/L)	TN (mg/L)
Reference Condition	0.32	0.92
Irrigated Cropland	1.28	1.19
Ratio	0.25	0.77

Step 3. Compute Volume Capture to Achieve Reference Condition Nutrient Load (Pervious Volume * (1-Ratio in Step 2)	AFY Retention to Meet Reference TP	AFY Retention to Meet Reference TN
	2.82	**0.86**

Step 4. Compute Total Volume to be Captured: Step 1 + Step 3 (max of TP or TN)	AFY of Retention	% of Drainage Area Volume
	2.82	**75%**

Compliance Demonstration through Offsets (Approach 4)

- Measured 10-yr average nutrient load at lake inflows (annual monitoring reports)
- Accounts for effectiveness of upstream controls - including reduction to overflow TP to Lake Elsinore from dry condition Canyon Lake alum additions

Table 2-3. Summary of Historical Estimated Annual Loads Based on Monitoring Year

Monitoring Year	Site 3 - Salt Creek at Murrieta Road			Site 4 - San Jacinto River at Goetz Road			Site 30 - Canyon Lake Spillway		
	Total Annual Flow (Mgal)	Total Nitrogen (kg)	Total Phosphorus (kg)	Total Annual Flow (Mgal)	Total Nitrogen (kg)	Total Phosphorus (kg)	Total Annual Flow (Mgal)	Total Nitrogen (kg)	Total Phosphorus (kg)
2011-2012[a]	743	5,371	1,099	881	6,370	3,535	1,290	5,474	3,062
2012-2013	147	1,025	180	424	3,341	822	114	NS	NS
2013-2014	411	4,268	1,409	484	3,252	1,178	148	NS	NS
2014-2015	511	4,661	1,257	570	3,932	1,041	196	NS	NS
2015-2016	515	5,647	1,447	872	7,926	4,624	476	NS	NS
2016-2017	1,596	12,366	4,026	2,802	21,651	14,403	4,850	33,759	6,637
2017-2018	271	2,586	482	393	3,055	810	117	NS	NS
2018-2019	1,394	12,213	2,266	3,208	20,457	7,409	5,893	32,832	5,416
2019-2020	1,645	14,792	3,705	3,290	23,337	8,660	4,497	18,762	2,635
2020-2021	255	1,902	396	519	3,794	992	878	5,626	175

NS – Not sampled when Canyon Lake does not overtop the Canyon Lake Spillway. The USGS stream gauge at Site 30 (USGS 11070500) is located downstream of Canyon Lake on the San Jacinto River close to the river entrance to Lake Elsinore. This downstream location is influenced by local urban runoff and groundwater seepage in addition to the flows from Canyon Lake. In addition, runoff from other local tributaries into Lake Elsinore are not included in this table.

[a] - Sum of January 1, 2011 to June 30, 2012. All other monitoring year dates are July 1 to June 30.

Compliance Demonstration through Offsets (Approach 4)

- Collective offset demand calculated as measured load minus reference watershed load
- Reference watershed load is the reference watershed concentration applied to the preceding 10-yr volume

- Canyon Lake, $OD_{CL} = (L_{SJR} – V_{SJR}*C_{REF}) + (L_{SC} – V_{SC}*C_{REF})$, where
  - OD_{CL} = Offset demand in Canyon Lake
  - L_{SJR} = Measured load to Canyon Lake from San Jacinto River
  - V_{SJR} = Measured volume to Canyon Lake from San Jacinto River
  - C_{REF} = Reference nutrient concentration
  - L_{SC} = Measured load to Canyon Lake from Salt Creek
  - V_{SC} = Measured volume to Canyon Lake from Salt Creek
- Canyon Lake Overflow to Lake Elsinore, $OD_{OVER} = (L_{OVER} – V_{OVER}*C_{REF})$, where
  - OD_{OVER} = Offset demand for Canyon Lake overflows to Lake Elsinore
  - L_{OVER} = Measured overflow load from Canyon Lake to Lake Elsinore
  - V_{OVER} = Measured overflow volume from Canyon Lake to Lake Elsinore
  - C_{REF} = Reference nutrient concentration
- Local Lake Elsinore Watershed, $OD_{zone1} = (L_{Zone1} – V_{Zone1}*C_{REF})$, where
  - OD_{zone1} = Offset demand for local Lake Elsinore watershed
  - L_{Zone1} = Estimated load from local Lake Elsinore watershed
  - V_{Zone1} = Estimated volume from local Lake Elsinore watershed
  - C_{REF} = Reference nutrient concentration
- Reclaimed Water Addition, $OD_{RW} = V_{RW} * (C_{RW} - C_{REF})$, where
  - OD_{RW} = Offset demand for reclaimed water addition to Lake Elsinore
  - V_{RW} = Measured volume of reclaimed water addition to Lake Elsinore
  - C_{RW} = Measured nutrient concentration of reclaimed water addition to Lake Elsinore
  - C_{REF} = Reference nutrient concentration

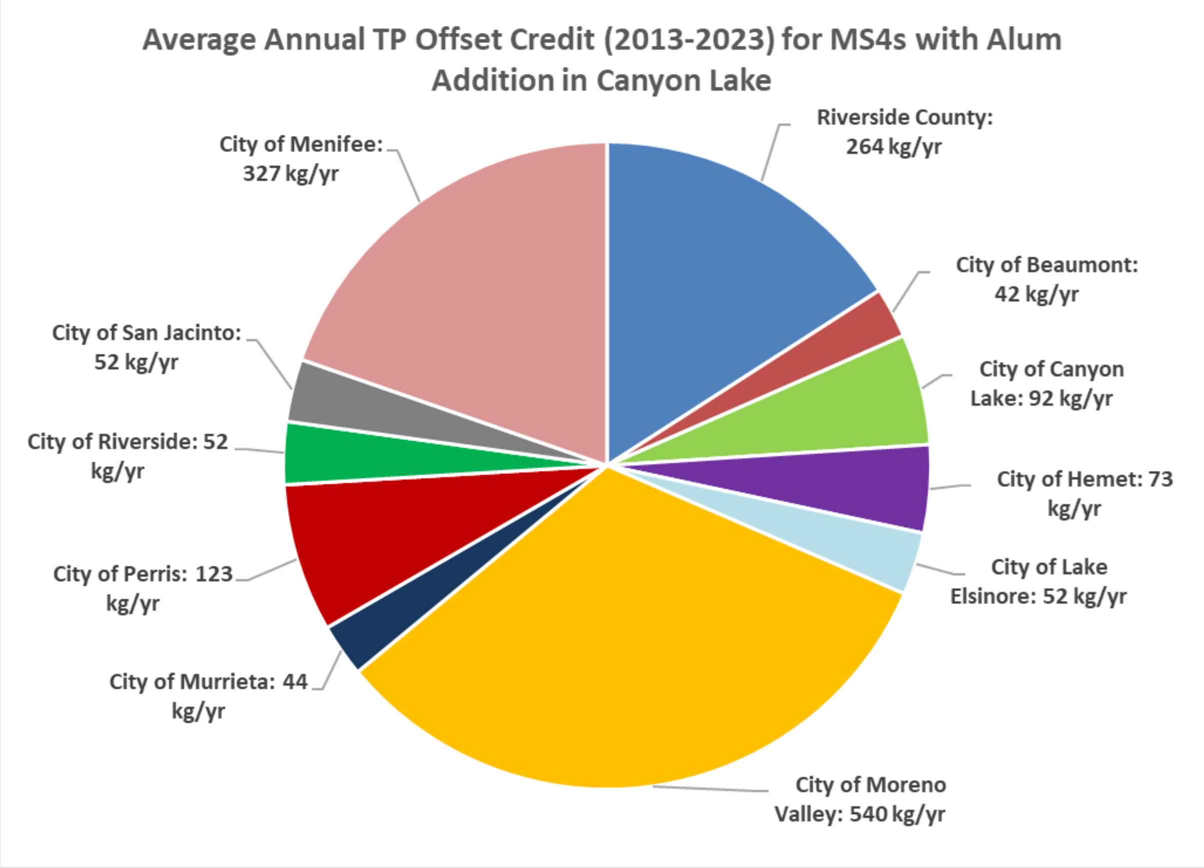
Compliance Demonstration through Offsets (Approach 4)

- Example using offset calculation formulas in revised TMDL to demonstrate compliance based on 2013-2022 measured loading
- Refined annually to credit deployment of new watershed BMPs as they come online

Calculation of Offset Demand for each Lake to meet Interim Allocations	Measured (2013-2022)			Allocation (Measured Volume * Ref Interim Conc)		Reduction to be Met with Offsets	
	Volume (AFY)	TP (kg/yr)	TN (kg/yr)	TP (kg/yr)	TN (kg/yr)	TP (kg/yr)	TN (kg/yr)
Canyon Lake							
Salt Creek at Murrieta Rd	2,184	1,587	6,609	862	2,478	725	4,131
San Jacinto River at Goetz Rd	4,025	4,135	10,400	1,589	4,568	2,546	5,832
Lake Elsinore							
Canyon Lake Spillway	5,161	1,487	9,493	2,037	5,857	None	3,636
Local Lake Elsinore Runoff	1,936	1,018	3,609	764	2,197	254	1,412
EVMWD Discharge to Elsinore	5,909	4,336	35,107	2,333	6,706	2,003	28,401

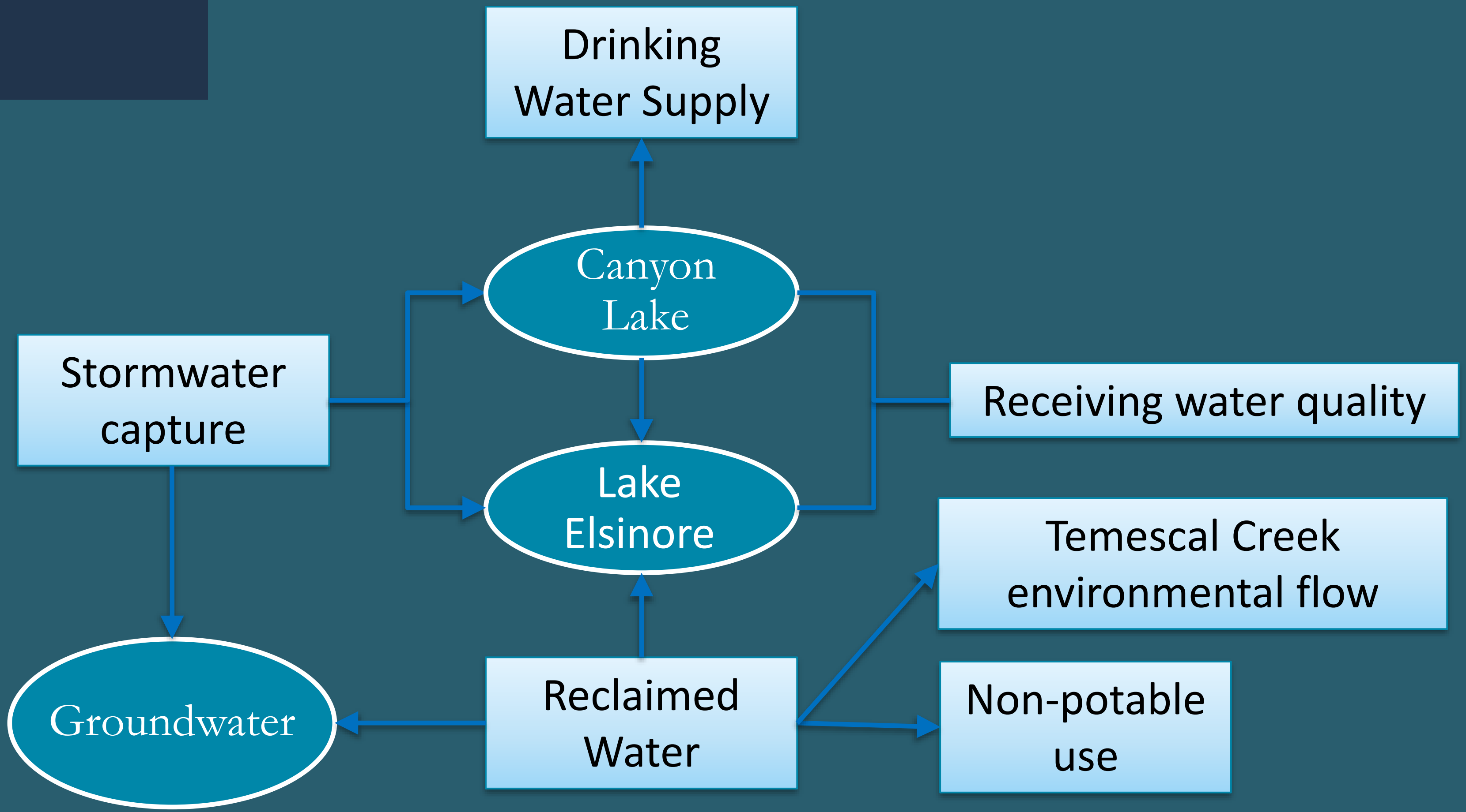
Compliance Demonstration through Offsets (Approach 4)

- Jurisdiction participation levels toward collected offset demand proportional to load reaching lakes
- Changes to jurisdictional areas, land use, and watershed BMPs over time addressed by involving formulas based on dynamic variables



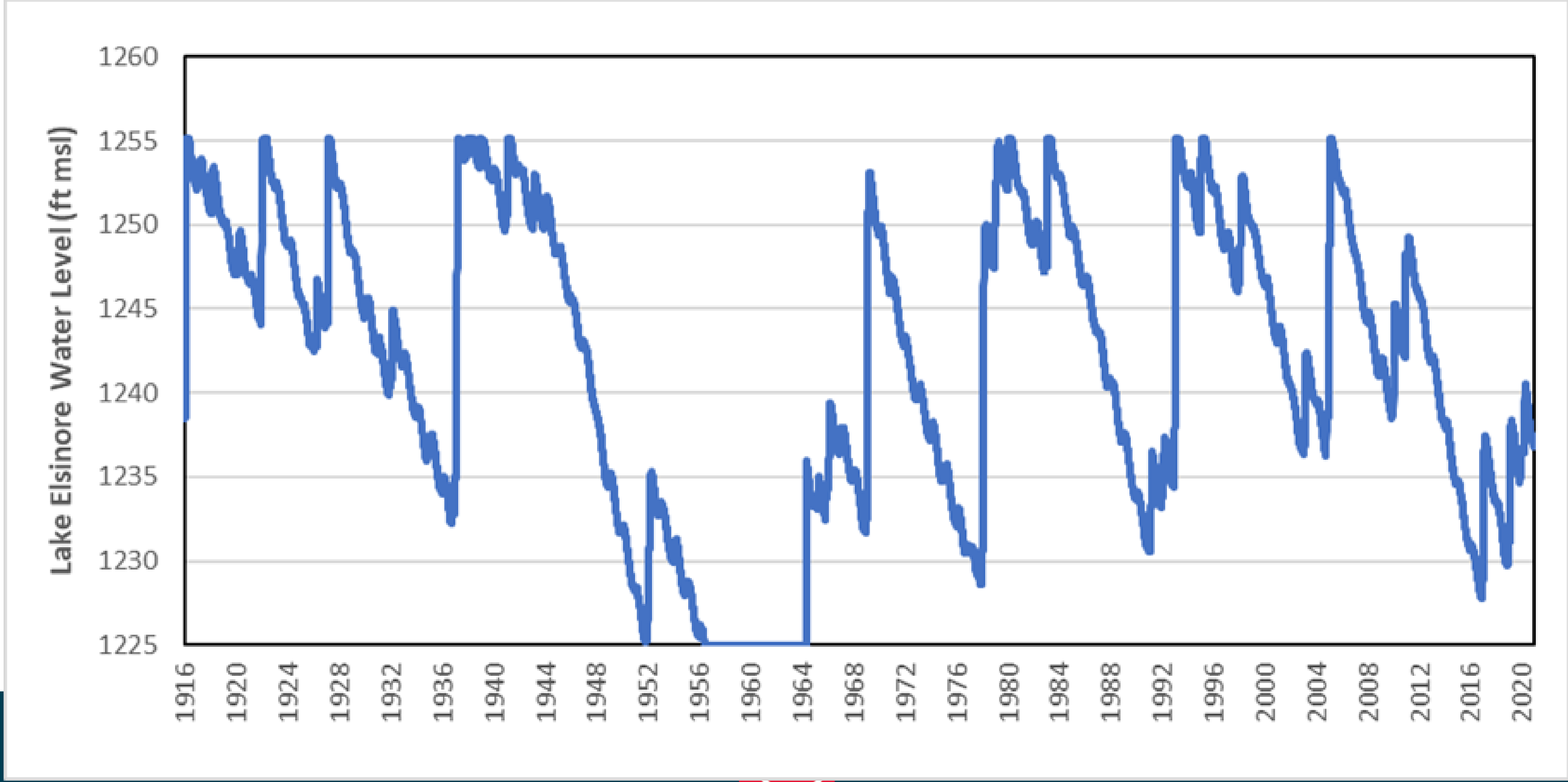
- Nutrient reduction calculator tracks deployments and updates relative loading for cost share calculations – modification with CNRP/AgNMP updates
- Based on 10-Yr average measured loads (e.g., zero Mystic Lake overflow = zero offset demand for zones 7-9)

Wet Lake Management Strategy



Section 2 Problem Statement

- GLM model results for water level without supplemental water addition

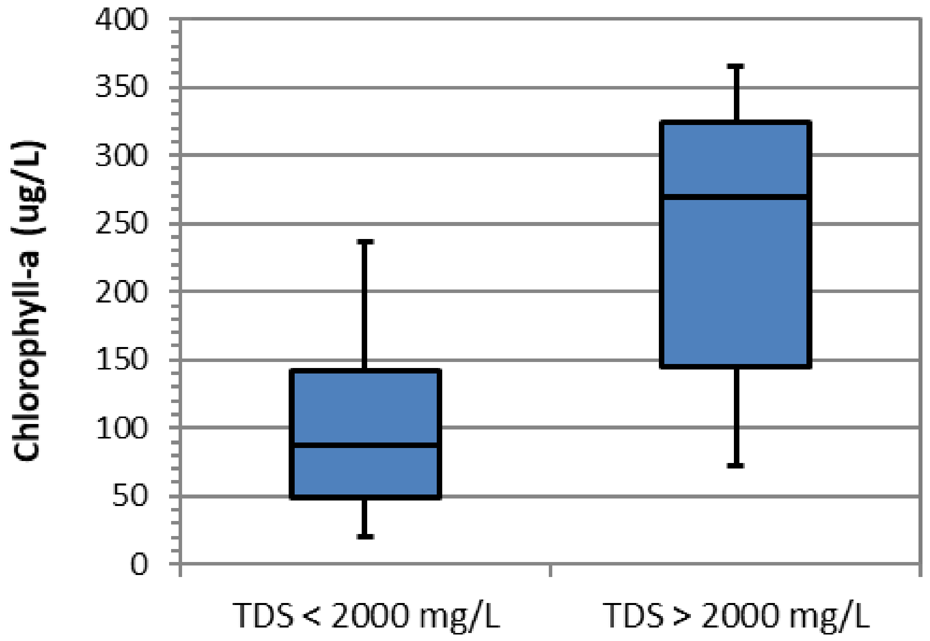


Benefits

- Maintain existing recreational use for disadvantaged community
- Prevent catastrophic fishery and ecosystem collapse during extended drought
- Prevent public health impacts of lakebed desiccation

Challenges

- Elimination of natural reset for internal nutrient loading from lake bottom sediment
- Demand for reclaimed water and long-term impact to average TDS within the lake



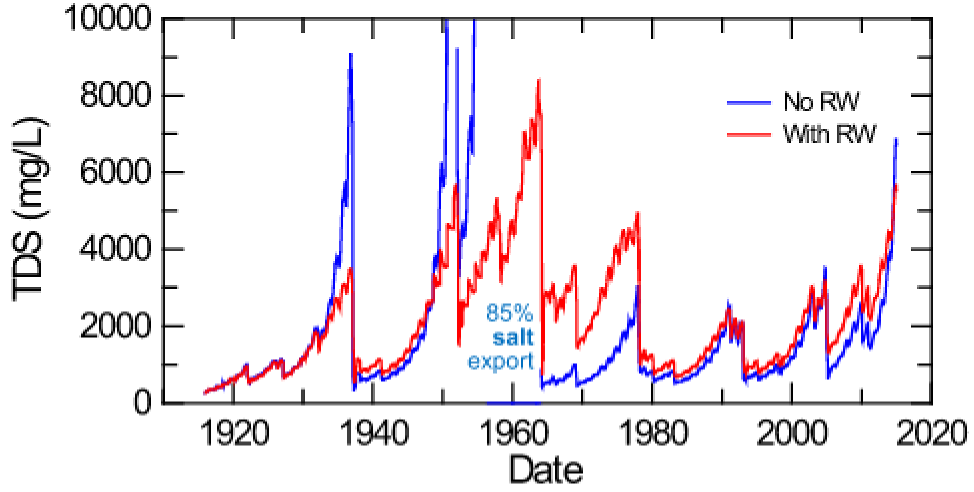


Fig. 19. Predicted TDS concentrations with natural runoff (no RW) and when supplemented with recycled water (with RW).

Implementation to Address Unique Challenges

- Special studies to identify (Task 5) and implement (Task 6) in-lake controls to manage sediment nutrient flux to achieve the reference condition TMDL
  - Identify: Work has begun with final recommendation expected by December 2024
  - Implement: TF will collaborate with LEAMS operators to construct the recommended option(s) (implementation schedule 18 months following effective date of TMDL revision
- Task 7 to revise water quality criteria if appropriate following five years of project(s) operation
  - Highest attainable use considering technical and economic feasibility after recommended project(s) are operational
  - Considering the additional challenge created by long-term TDS increase from wet lake management strategy
- Task 5-7 occur over 10 years ahead of interim compliance date