

MSAR BACTERIA TMDL NEXT STEPS DISCUSSION

APRIL 22, 2020

Table 4-pio – Pathogen Indicator Bacteria Objectives for Fresh Waters¹

Recreational Use	Pathogen Indicator Objective (geometric mean of at least 5 samples in a 30-day period (running) ²
REC1-only or REC1 and REC2	<126 E. coli organisms per 100 mL ³
REC2-only ⁴	N/A; see REC2 Only Freshwaters, below, and Chapter 5, Recreation Water Quality Standards, Antidegradation targets for REC2 only freshwaters

¹ The water quality objectives specified in Table 4-pio (...) do not apply to a river or stream if and when the recreational uses are temporarily suspended due to unsafe flow conditions therein. (....).

² The Regional Board may adopt other alternative averaging periods, such as annual or seasonal averages, through the basin planning process.

³ Where it is necessary to make public notification and/or beach closure decisions in the absence of sufficient data to calculate a representative geometric mean for E. coli, no single sample shall exceed the default value shown in Table 5-REC1-ssv (...).

⁴ Waterbodies designated REC2 but not designated REC1.

SANTA ANA BASIN PLAN WATER QUALITY OBJECTIVE

"PATHOGEN INDICATOR CONCENTRATIONS SHALL NOT EXCEED THE VALUES SPECIFIED IN TABLE 4-PIO BELOW AS A RESULT OF <u>CONTROLLABLE</u> WATER QUALITY FACTORS (...) UNLESS IT IS DEMONSTRATED TO THE REGIONAL BOARD'S SATISFACTION THAT THE ELEVATED INDICATOR CONCENTRATIONS DO NOT RESULT IN EXCESSIVE RISK OF ILLNESS AMONG PEOPLE RECREATING IN OR NEAR THE WATER. IF THIS DEMONSTRATION IS MADE, THEN SITE-SPECIFIC CONSIDERATION OF APPROPRIATE PATHOGEN INDICATOR CONCENTRATIONS WILL BE NECESSARY."

CONTROLLABLE V. UNCONTROLLABLE BACTERIA SOURCES

CONTROLLABLE SOURCES

- IMPROPER USE OF FERTILIZERS
- IMPROPER HANDLING OF PET WASTES
- CROSS-CONNECTIONS
- LEAKY SEWER CONNECTIONS
- SANITARY SEWER OVERFLOWS
- IMPROPER MANAGEMENT OF CAFO WASTE
- RUNOFF FROM YARDS
- HOMELESS ENCAMPMENTS

UNCONTROLLABLE SOURCES

- WILDLIFE ACTIVITY & WASTE
- BACTERIAL REGROWTH WITHIN SEDIMENT OR
 BIOFILM
- RESUSPENSION FROM DISTURBED SEDIMENT
- CONCENTRATIONS OF SEMI-WILD
 WATERFOWL
- SHEDDING DURING SWIMMING

Applicable Waters	Objective Elements	Estimated Illness Rate (NGI): 32 per 1,000 water contact recreators									
		Magnit	ude								
	Indicator	GM (cfu/100 mL)	STV (cfu/100 mL)								
All waters where the salinity is equal to or less than 1 ppth 95 percent or more of the time	E. coli	100	320								
All waters where the salinity is greater than 1 ppth more than 5 percent of the time	Enterococci	30	110								

The waterbody GM shall not be greater than the applicable GM magnitude in any six-week interval, calculated weekly. The applicable STV shall not be exceeded by more than 10 percent of the samples collected in a CALENDAR MONTH, calculated in a static manner. 2019 BACTERIA PROVISIONS – STATE'S ISWEBE



ISWEBE IMPLEMENTATION OPTIONS

- REFERENCE SYSTEM/ANTIDEGRADATION APPROACH
 - NEED MINIMALLY DISTURBED WATER FOR REFERENCE
- NATURAL SOURCES EXCLUSION APPROACH
 - NEED TO FIRST IDENTIFY, QUANTIFY AND CONTROL ANTHROPOGENIC SOURCES
- HIGH FLOW SUSPENSION OF REC-1 BENEFICIAL USE
 - ALREADY ADOPTED IN SANTA ANA BASIN PLAN FOR MANY WATERBODIES
 - NEW SUSPENSIONS SUBJECT TO USE ATTAINABILITY ANALYSIS
- SEASONAL SUSPENSION OF REC-1 BENEFICIAL USE
 - REQUIRES USE ATTAINABILITY ANALYSIS
- LIMITED WATER CONTACT RECREATION DESIGNATION
 - REQUIRES USE ATTAINABILITY ANALYSIS IF WQO < ISWEBE WQO







Indicator	TMDLs for Bacterial Indicators WLA for Urban Runoff, including stormwater WLAs for CAFOs LAs for Agricultural Runoff LA for Natural Sources
Dry Summer Conditions	s: April 1 through October 31, no later than December 31, 2015
E. Coli	<113 organisms/100 mL (5-sample/30-day mean) No more than 10% of samples exceed 212 organisms/100 mL in any 30-day period
Wet Winter Conditions:	November 1 through March 31, no later than December 31, 2025
E. Coli	<113 organisms/100 mL (5-sample/30-day mean) No more than 10% of samples exceed 212 organisms/100 mL in any 30-day period

TABLE 5-9X – TMDLS FOR BACTERIAL INDICATORS IN MIDDLE SANTA ANA RIVER WATERBODIES



Existing Implementation Mechanisms



<u>Phase I MS4s</u> Implement dry season CBRPs CBRPs = WQBELs Wet weather CBRPs due 24 months after next NPDES Permit



<u>Dairies</u> WDR specific provisions Agricultural Sources BASMP



<u>Small MS4s</u> CBRP requirements in 2017 General Order



POTENTIAL KEY ELEMENTS FOR REVISIONS TO BASIN PLAN AND/OR RELATED TO MSAR TMDL

NEXT STEPS TO CONSIDER

- A. REVISE BASIN PLAN AND MSAR TMDL
 - SEE DRAFT SCHEDULE
 - ALTERNATIVELY, UPDATE MSAR TMDL ONLY
 - BASIN PLAN POTENTIALLY IMPACTS MORE PARTIES
- B. POTENTIAL SPECIAL STUDY
 - EVALUATE EXTENT OF *E*. COLI RESIDING IN BOTTOM SEDIMENTS OR BIOFILMS
- C. REVISIONS TO TMDL IMPLEMENTATION PLANS (CBRPS, ETC.)
 - DEVELOP CRITERIA FOR IDENTIFYING/QUANTIFYING
 UNCONTROLLABLE SOURCES



SPECIAL STUDY

- SYNOPTIC STUDY 77 PERCENT OF E. COLI LOAD IN SANTA ANA RIVER COMES FROM NON-HUMAN SOURCES UPSTREAM OF MS4 INFLOWS
- RECOMMENDED STUDY TO EVALUATE POTENTIAL ROLE OF RELEASES
 COLONIES IN BOTTOM SEDIMENT







Collect site-specific data to assess the extent to which naturalized *E. coli* exists in the bottom sediments or biofilms of the TMDL waters

Sediment samples over different seasons

Multiple sites within focus reaches

Coupled with overlying water samples

Quantification of key factors influencing colony formation, growth, and releases to overlying water (e.g., nutrients, dissolved organic carbon, and temperature, flowrate)

Releases occurring under turbulent (wet weather or large deminimus flows) and quiescent (typical dry weather) flow conditions

SPECIAL STUDY



SPECIAL STUDY

General Bacteroidetes analysis provides a measure of fresh fecal biomass in water samples from controllable (human, dog) and uncontrollable (e.g. bird, pig)

Absence of Bacteroidetes, nearly all of the *E*. coli loading can be deduced as originating from naturalized colonies (an uncontrollable source in Basin Plan)

		Year (Quarter)																					
Fask	Activity	2020		2021				2022				2023				2024				2025			
		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Special Studies/Technical Analyses																						
2	1 st Draft of TMDL Technical Report																						
3	2 nd Draft of TMDL Technical Report																						
4	Draft Basin Plan Revisions (State Water Board consistency)																						
5	Substitute Environmental Document; Economic Analysis																						
6	Final TMDL Technical Document																						
7	Final Draft Revisions to Basin Plan																						
8	Preliminary Administrative Record																						
9	Public Workshop																						
10	External Scientific Peer Review																						
11	Response to Peer Review Comments																						
12	Draft Staff Report																						
13	Workshop/Public Comment & Response																						
14	Board Hearing to Consider Basin Plan Amendments																						
15	Final Administrative Record																						
16	State Water Board Approval of Basin Plan Amendment																						
17	Office Administrative Law Review																						
18	EPA Approval																						
19	Updates to CBRP/Other TMDL Implementation Plans																						

REQUEST TASK FORCE DIRECTION

- PREPARATION OF RFP FOR SPECIAL STUDY
- PREPARATION OF RFP FOR PREPARATION OF TECHNICAL REPORT TO SUPPORT REVISION OF MSAR TMDL AND BASIN PLAN AMENDMENTS