

**STATE WATER RESOURCES CONTROL BOARD**  
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

**Part 3 of the Water Quality Control Plan  
for Inland Surface Waters, Enclosed Bays, and  
Estuaries of California**

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**Bacteria Provisions and a  
Water Quality Standards Variance Policy**

August 7, 2018



## II. BENEFICIAL USES

The Regional Water Quality Control Boards (Regional Water Boards) shall use the following beneficial use and abbreviation listed below to the extent such activities are defined in a water quality control plan after *[insert effective date of Part 3]*:

Limited Water Contact Recreation (LREC-1): Uses of water that support limited recreational activities involving body contact with water, where the activities are predominantly limited by physical conditions and, as a result, body contact with water and ingestion of water is infrequent or insignificant.

## III. WATER QUALITY OBJECTIVES

### E. Bacteria

#### 1. Applicability

Chapter III.E.2 establishes water quality objectives for reasonable protection of people that recreate within all surface waters, enclosed bays, and estuaries of the state that have the water contact recreation beneficial use (REC-1).<sup>1</sup>

#### 2. Bacteria Water Quality Objectives

Chapter III.E.2 contains two BACTERIA WATER QUALITY OBJECTIVES<sup>2</sup> applicable to waters with the REC-1 beneficial use, depending on the salinity level, as discussed below (see Table 1).

##### *E. coli*

The bacteria water quality objective for all waters where the salinity is equal to or less than 1 part per thousand (ppt) 95 percent or more of the time during the CALENDAR YEAR is: a six-week rolling GEOMETRIC MEAN of *Escherichia coli* (*E. coli*) not to exceed 100 colony forming units (cfu) per 100 milliliters (mL), calculated weekly, and a STATISTICAL THRESHOLD VALUE (STV) of 320 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a CALENDAR MONTH, calculated in a static manner.

United States Environmental Protection Agency (U.S. EPA) recommends using U.S. EPA Method 1603 or other equivalent method to measure culturable *E. coli*.

##### Enterococci

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<sup>1</sup> As of *[insert effective date of Part 3]*, the effective date of Part 3 of the ISWEBE, the BASIN PLAN (p. 3-4) for the Lahontan Regional Water Board contains fecal coliform bacteria water quality objectives that are generally applicable to all surface waters within the region and not expressly established for the reasonable protection of the REC-1 beneficial use. Part 3 of the ISWEBE establishes numeric bacteria water quality objectives for the REC-1 beneficial use and, therefore, would apply to applicable waters within the Lahontan region that have the REC-1 beneficial use and do not supersede the fecal coliform bacteria objectives.

<sup>2</sup> Terms in "ALL CAPS" font (except abbreviations) are defined in the Glossary, Attachment A.

The bacteria water quality objective for all waters where the salinity is greater than 1 ppt more than 5 percent of the time during the CALENDAR YEAR is: a six-week rolling GEOMETRIC MEAN of enterococci not to exceed 30 cfu/100 mL, calculated weekly, with a STV of 110 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a CALENDAR MONTH, calculated in a static manner.

U.S. EPA recommends using U.S. EPA Method 1600 or other equivalent method to measure culturable enterococci.

**Table 1. REC-1 Bacteria Water Quality Objectives**

Applicable Waters	Objective Elements	Estimated Illness Rate (NGI): 32 per 1,000 water contact recreators	
		Magnitude	
	Indicator	GM (cfu/100 mL)	STV (cfu/100 mL)
All waters where the salinity is equal to or less than 1 ppt 95 percent or more of the time	<i>E. coli</i>	100	320
All waters where the salinity is greater than 1 ppt 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.

NGI = National Epidemiological and Environmental Assessment of Recreational Water gastrointestinal illness rate  
 GM = geometric mean  
 STV = statistical threshold value  
 cfu = colony forming units  
 mL = milliliters  
 ppt = parts per thousand

Water Quality Standards Assessment

When applying the listing and delisting factors contained in the Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List, the GEOMETRIC MEAN and STV shall be used as follows, unless a situation-specific weight of the evidence factor is being applied: Only the GEOMETRIC MEAN values shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples distributed over a six-week period. However, if a statistically sufficient number of samples is not available to calculate the GEOMETRIC MEAN, then attainment of the water quality standard shall be determined based only on the STV. When making a listing or delisting decision based on the situation-specific weight of the evidence factor and if beach use or beach closure information is available, such information shall be evaluated.

### **3. Interaction of Bacteria Water Quality Objectives with Basin Plans**

The BACTERIA WATER QUALITY OBJECTIVES supersede numeric water quality objectives for bacteria for the REC-1 beneficial use contained in a BASIN PLAN prior to *[insert the effective date of Part 3]*. The BACTERIA WATER QUALITY OBJECTIVES do not supersede any narrative water quality objective or numeric SITE-SPECIFIC WATER QUALITY OBJECTIVE for bacteria established for the REC-1 beneficial use.

Total maximum daily loads (TMDLs) established before *[insert the effective date of Part 3]* to implement numeric water quality objectives for bacteria are in effect for numerous waterbodies throughout the state. Such TMDLs remain in effect where a BACTERIA WATER QUALITY OBJECTIVE supersedes a water quality objective for bacteria for which the TMDL was established. A Regional Water Board may convene a public meeting to evaluate the effectiveness of the TMDL in attaining the BACTERIA WATER QUALITY OBJECTIVE.

## **IV. IMPLEMENTATION**

### **E. Bacteria**

#### **1. Applicability of Bacteria Water Quality Objectives**

The BACTERIA WATER QUALITY OBJECTIVES shall be implemented, where applicable, through National Pollutant Discharge Elimination System (NPDES) permits issued pursuant to section 402 of the Clean Water Act, water quality certifications issued pursuant to section 401 of the Clean Water Act, waste discharge requirements (WDRs), and waivers of WDRs. However, where a permit, WDR, or waiver of WDR includes an effluent limitation or discharge requirement derived from a water quality objective, guideline, or other requirement to control bacteria that is a more stringent value than the applicable BACTERIA WATER QUALITY OBJECTIVE, the BACTERIA WATER QUALITY OBJECTIVE shall not be implemented in the permit, WDR, or waiver of WDR.

The GEOMETRIC MEAN and the STV contained in the applicable BACTERIA WATER QUALITY OBJECTIVES shall be applied in all circumstances, except in the context of a TMDL or a BASIN PLAN amendment. In the context of a TMDL or a BASIN PLAN amendment, Regional Water Boards may implement a reference system/antidegradation approach or natural sources exclusion approach in accordance with Chapter IV.E.2. A TMDL that implements either approach is subject to U.S. EPA's approval authority under Clean Water Act section 303(d) and such a TMDL or a BASIN PLAN amendment that implements either approach may be subject to U.S. EPA's approval authority under Clean Water Act section 303(c).

## **2. Natural Sources of Bacteria**

### **a. Applicability**

The implementation provisions contained in Chapter IV.E.2 apply to municipal storm water discharges regulated pursuant to Clean Water Act section 402(p) and non-point source discharges except on-site wastewater treatment system discharges. These implementation provisions do not apply to NPDES discharges other than municipal storm water discharges.

### **b. Reference System/Antidegradation Approach and Natural Sources Exclusion Approach**

In the context of a TMDL or a BASIN PLAN amendment developed to implement the BACTERIA WATER QUALITY OBJECTIVES, a reference system/antidegradation approach may be utilized to ensure: (1) bacteriological water quality is at least as good as that of an applicable REFERENCE SYSTEM, and (2) no degradation of existing water quality is allowed when the existing water quality is better than the REFERENCE SYSTEM. In such circumstances, the TMDL or BASIN PLAN amendment may include a certain frequency of exceedance of the applicable BACTERIA WATER QUALITY OBJECTIVES based on the observed exceedance frequency in the applicable REFERENCE SYSTEM or the targeted water body, whichever is less.

In the context of a TMDL or a BASIN PLAN amendment developed to implement the BACTERIA WATER QUALITY OBJECTIVES, a natural source exclusion approach may be utilized after all anthropogenic sources of bacteria are identified, quantified, and controlled. In such circumstances, the TMDL or BASIN PLAN amendment may include a certain frequency of exceedance of the applicable BACTERIA WATER QUALITY OBJECTIVES based on the observed exceedance frequency of the identified and quantified natural sources of bacteria of the targeted water body.

## **3. High Flow Suspension of the Water Contact Recreation (REC-1) Beneficial Use**

A WATER BOARD may adopt a high flow suspension of the water contact recreation (REC-1) beneficial use that reflects water conditions considered unsafe for the REC-1 beneficial use due to high water flow or velocity. A rainfall measure, flow measure, or other requirements shall be established by the WATER BOARD to describe specific conditions during which the high flow suspension would apply. To adopt a high flow suspension of the REC-1 beneficial use, the WATER BOARD must conduct a USE ATTAINABILITY ANALYSIS. A WATER BOARD's adoption of a high flow suspension of the REC-1 beneficial use is subject to review and approval by the State Water Board (if the adopting WATER BOARD is a Regional Water Board) and U.S. EPA.

If a high flow suspension of the REC-1 beneficial use is adopted, the BACTERIA WATER QUALITY OBJECTIVE for the REC-1 beneficial use does not apply during the period of time that the REC-1 use is suspended; however, during all other times outside of the period of the high flow suspension, the BACTERIA WATER QUALITY OBJECTIVE for the REC-1 use applies. All other applicable public health-related beneficial uses need to be protected during the period of the high flow suspension.

#### **4. Seasonal Suspension of the Water Contact Recreation (REC-1) Beneficial Use**

A WATER BOARD may adopt a seasonal suspension of the water contact recreation (REC-1) beneficial use to reflect water conditions considered inapplicable or unsafe for the REC-1 beneficial use due to low water flows, low water temperatures, or conditions that freeze water. A flow measure, water temperature measure, or other condition(s) shall be established by the WATER BOARD to describe specific conditions during which the seasonal suspension would apply. To adopt a seasonal suspension of the REC-1 beneficial use, the WATER BOARD must conduct a USE ATTAINABILITY ANALYSIS. A WATER BOARD's adoption of a seasonal suspension of the REC-1 beneficial use is subject to review and approval by the State Water Board (if the adopting WATER BOARD is a Regional Water Board) and U.S. EPA.

If a seasonal suspension of the REC-1 beneficial use is adopted, the BACTERIA WATER QUALITY OBJECTIVE for the REC-1 beneficial use does not apply during the period of the seasonal suspension; however, during all other times outside of the period of the seasonal suspension, the BACTERIA WATER QUALITY OBJECTIVE for the REC-1 use applies. All other applicable public health-related beneficial uses need to be protected during the period of the seasonal suspension.

#### **5. Limited Water Contact Recreation (LREC-1) Designation**

A WATER BOARD may designate a water body or waterbody segment(s) with the Limited Water Contact Recreation (LREC-1) beneficial use. A WATER BOARD must conduct a USE ATTAINABILITY ANALYSIS if application of the LREC-1 beneficial use requires a less stringent water quality objective for bacteria than the previously applicable BACTERIA WATER QUALITY OBJECTIVE for the REC-1 use. A WATER BOARD's designation of the LREC-1 beneficial use is subject to review and approval by the State Water Board (if the adopting WATER BOARD is a Regional Water Board) and U.S. EPA.

### **F. WATER QUALITY STANDARDS VARIANCES**

Federal regulations establish an explicit regulatory framework for the adoption of a water quality standards variance (WQS VARIANCE) that states may use to implement adaptive management approaches to improve water quality (40 C.F.R. § 131.14 (herein referred to as the federal rule)). A WATER BOARD is not required to adopt specific authorizing provisions into state law before establishing a WQS VARIANCE consistent with the federal rule. The following explains the existing requirements that a WATER BOARD must follow to establish a WQS VARIANCE consistent with the federal rule.

Under the federal rule, a WQS VARIANCE may be adopted for one or more NPDES dischargers or for a water body or waterbody segment, but the WQS VARIANCE only applies to the discharger(s) or the water body or waterbody segment specified in the WQS VARIANCE.

The federal rule specifies that any WQS VARIANCE is not effective unless and until it is approved by U.S. EPA. The federal rule also specifies that a WQS VARIANCE is subject to the public participation requirements at 40 Code of Federal Regulations section 131.20(b), which requires that one or more public hearings be held in accordance with state law and U.S. EPA's public participation regulation (40 C.F.R. part 25).

Where a discharger-specific WQS VARIANCE is established by a single permit, including an individual permit or a general permit, or other order, the federal rule's public participation requirements must be satisfied, and the provisions in the permit or other order that rely upon the discharger-specific WQS VARIANCE must be conditioned upon U.S. EPA approval. Because the establishment of a discharger-specific WQS VARIANCE in such a permit or other order is not the establishment or revision of a rule, the permit action need not be accompanied by a rulemaking action. The applicable hearing requirement for any other WQS VARIANCE would be subject to the hearing requirement and other procedures applicable to revising a water quality control plan, which are consistent with the federal rule's public participation requirements.



## Attachment A. Glossary

**BACTERIA WATER QUALITY OBJECTIVE(S):** The bacteria water quality objectives set forth in Chapter III.E.2.

**BACTERIA PROVISIONS:** The Limited Water Contact Recreation (LREC-1) beneficial use contained in Chapter II, the BACTERIA WATER QUALITY OBJECTIVES contained in Chapter III, and the implementation sections contained in Chapter IV.

**CALENDAR YEAR:** A period of time defined as twelve consecutive CALENDAR MONTHS.

**CALENDAR MONTH(S):** A period of time from a day of one month to the day before the corresponding day of the next month if the corresponding day exists, or if not to the last day of the next month (e.g., from January 1 to January 31, from June 15 to July 14, or from January 31 to February 28).

**BASIN PLAN:** A water quality control plan, often referred to as a basin plan, which consists of a designation or establishment for the waters within a specified area of all of the following: (1) beneficial uses to be protected, (2) water quality objectives, and (3) a program of implementation needed for achieving water quality objectives.

**GEOMETRIC MEAN (GM):** The geometric mean is a type of mean or average that indicates the central tendency or typical value of a set of numbers by using the product of their values (as opposed to the arithmetic mean which uses their sum). The geometric mean is defined as the  $n$ th root of the product of  $n$  numbers. The formula is expressed as:  $GM = \sqrt[n]{(x_1)(x_2)(x_3) \dots (x_n)}$ , where  $x$  is the sample value and  $n$  is the number of samples taken.

**REFERENCE SYSTEM:** A watershed or water body segment determined by the WATER BOARD to be minimally disturbed by anthropogenic stressors but otherwise is representative of conditions of the assessed site, watershed, or water body segment.

**SITE-SPECIFIC WATER QUALITY OBJECTIVE:** A water quality objective that reflects site-specific conditions. It may be appropriate to develop a water quality objective for a site when it is determined that the otherwise applicable objective is inappropriate for the water body (i.e., based on site-specific conditions the applicable objective does not protect the beneficial use or a less stringent objective is warranted).

**STATISTICAL THRESHOLD VALUE (STV):** The STV for the BACTERIA WATER QUALITY OBJECTIVES is a set value that approximates the 90th percentile of the water quality distribution of a bacterial population. For the BACTERIA WATER QUALITY OBJECTIVES, the STV for *E. coli* is 320 cfu/100 mL and the STV for enterococci is 110 cfu/100mL.



**USE ATTAINABILITY ANALYSIS:** A structured scientific assessment of the factors affecting the attainment of a water body's designated use, including physical, chemical, biological, and economic factors, in accordance with 40 Code of Federal Regulations section 131.10(g).

**WATER BOARD(S):** The individual or collective regulatory entity or entities consisting of the State Water Resources Control Board and/or the nine Regional Water Quality Control Boards.

**WQS VARIANCE(S):** A water quality standards variance, as defined by 40 Code of Federal Regulations section 131.3(o), is a time-limited designated use and criterion for a specific pollutant(s) or water quality parameter(s) that reflect the highest attainable condition during the term of the water quality standards variance.