SHR-107

Draft
Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Bacteria Provisions and a Water Quality Standards Variance Policy

June 30, 2017

[The entirety of the following text, except the italicized annotations, is proposed to be adopted as Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Bacteria Provisions and a Water Quality Standards Variance Policy (Part 3). Part 3 would constitute new regulatory language. Several editorial revisions may be made, including but not limited to appropriate changes to the title page, table of contents, appendices, page numbers, table and figure numbers, footnote numbers, and headers and footers, when Part 3 is incorporated into the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan).[1]]

II. BENEFICIAL USES

[Proposed text to be added to Chapter II (Beneficial Uses) of the ISWEBE Plan.]

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 such as very shallow water depth or restricted access and, as a result, body contact with water and ingestion of water is infrequent or insignificant.

III. WATER QUALITY OBJECTIVES

[Proposed text to be added to Chapter III (Water Quality Objectives) of the ISWEBE Plan.]

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).[2]

2. Bacteria Water Quality Objectives

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

[1] The State Water Board intends to amend the Water Quality Control Plan for Enclosed Bays and Estuaries of California to create the ISWEBE Plan. The ISWEBE Plan would incorporate Part 3.

[2] As of 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 does not supersede the fecal coliform bacteria objectives.

E. coli

The bacteria water quality objective for all waters, except Lake Tahoe, where the salinity is less than 10 parts per thousand (ppth) 95 percent or more of the time during the CALENDAR YEAR[3] is: a six-week rolling GEOMETRIC MEAN of *Escherichia coli (E. coli)* not to exceed 100 colony forming units per 100 milliliters (cfu/100 mL), calculated weekly, and a STATISTICAL THRESHOLD VALUE (STV) of 320 cfu/100 mL not to be exceeded more than 10 percent of the time, calculated monthly.

The bacteria water quality objective for Lake Tahoe is: a six-week rolling GEOMETRIC MEAN of *E. coli* not to exceed of 17 cfu/100 mL, calculated weekly, and a STV of 55 cfu/100 mL not to be exceeded more than 10 percent of the time, calculated monthly.

United States Environmental Protection Agency (U.S. EPA) recommends using U.S. EPA Method 1603 (U.S. EPA, 2002b) or other equivalent method to measure culturable *E. coli.*

Enterococci

The bacteria water quality objective for all waters where the salinity is equal to or greater than 10 ppth 95 percent or more 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 more than 10 percent of the time, calculated monthly.

U.S. EPA recommends using U.S. EPA Method 1600 (U.S. EPA, 2002a) or other equivalent method to measure culturable enterococci.

To determine attainment of the *E. coli* and enterococci BACTERIA WATER QUALITY OBJECTIVES, the GEOMETRIC MEAN values shall be applied based on a statistically sufficient number of samples, which is generally not less than five samples equally spaced over a six-week period. If a statistically sufficient number of samples are not available to calculate the GEOMETRIC MEAN, then attainment of the water quality standard shall be determined based on the STV.

[3] Terms in "ALL CAPS" font (except abbreviations) are defined in the Glossary, Attachment A.

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, except Lake Tahoe, where the salinity is less than 10 ppth 95 percent or more of the time	*E. coli*	100	320
Lake Tahoe	*E. coli*	17	55
All waters, where the salinity is equal to or greater than 10 ppth 95 percent or more 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 more than 10 percent of the time, calculated monthly.

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
ppth = parts per thousand

3. Interaction of Bacteria Water Quality Objectives with Basin Plans

The BACTERIA WATER QUALITY OBJECTIVES supersede any numeric water quality objective for bacteria for the REC-1 beneficial use contained in a BASIN PLAN. The BACTERIA WATER QUALITY OBJECTIVES do not supersede any site-specific numeric water quality objective for bacteria established for the REC-1 beneficial use before or after [*insert the effective date of Part 3*].

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

IV. IMPLEMENTATION

[*Proposed text to be added to Chapter IV (Implementation) of the ISWEBE PLAN.*]

E. Bacteria

1. Applicability

Any of 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, and waivers of waste discharge requirements, except to discharges for which load allocations or waste load allocations are assigned by a TMDL established before [*insert the effective date of Part 3*].

The GEOMETRIC MEAN contained in the applicable BACTERIA WATER QUALITY OBJECTIVES shall be strictly applied in all circumstances, including in the context of a TMDL established after *[insert the effective date of Part 3]*. The STV contained in the applicable BACTERIA WATER QUALITY OBJECTIVES shall be strictly applied in all circumstances, except in the context of a TMDL. In the context of a TMDL, Regional Water Boards may implement the applicable STV by using a reference system/anti-degradation approach or natural sources exclusion approach.

2. Natural Sources of Bacteria

a. Applicability

The implementation procedures contained in Chapter IV.E.2 apply to non-point source discharges except on-site wastewater treatment system discharges, and storm water discharges regulated pursuant to section 402(p) of the Clean Water Act except industrial storm water discharges, and may only be implemented within the context of a TMDL.

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

TMDLs include waste load allocations for point sources, load allocations for nonpoint sources, and natural background levels to identify and enumerate each individual source.

In the context of a TMDL developed to attain 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 may include a certain frequency of exceedance of the applicable BACTERIA WATER QUALITY OBJECTIVES STV based on the observed exceedance frequency in the applicable REFERENCE SYSTEM or the targeted waterbody, whichever is less.

In the context of a TMDL developed to attain 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 may include a certain frequency of exceedance of the applicable BACTERIA WATER QUALITY OBJECTIVES STV based on the observed exceedance frequency of the identified and quantified natural sources of bacteria of the targeted waterbody.

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 rain fall 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 as described in 40 Code of Federal Regulations sections 131.3(g) and 131.10(g). 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 objectives for the REC-1 beneficial use do 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 objectives for the REC-1 use apply. Bacteria water quality objectives for other applicable beneficial uses, including noncontact water recreation (REC-2), remain in effect.

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

A WATER BOARD may suspend 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 suspend the REC-1 beneficial use, the WATER BOARD must conduct a use attainability analysis as described in in 40 Code of Federal Regulations sections 131.3(g) and 131.10(g). 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 objectives for the REC-1 beneficial use do 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 objectives for the REC-1 use apply. Bacteria water quality objectives for other applicable beneficial uses, including noncontact water recreation (REC-2), remain in effect.

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

A WATER BOARD may designate a waterbody or waterbody segment(s) with the Limited Water Contact Recreation (LREC-1) beneficial use. A WATER BOARD must conduct a use attainability analysis as described in 40 Code of Federal Regulations sections 131.3(g) and 131.10(g) 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.). As a result, a WATER BOARD may adopt a WQS VARIANCE in accordance with the federal rule.

Attachment A. Glossary

BACTERIA WATER QUALITY OBJECTIVES: 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 corresponding day of the next month if such exists, or if not to the last day of the next month (e.g., from January 3 to February 3 or from January 31 to February 29).

BASIN PLAN: Also known as a water quality control plan, a basin plan 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): In mathematics, the geometric mean is a type of mean or average, which 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.

REFERENCE SYSTEM: A reference system is an area and associated monitoring point that is not impacted by human activities that potentially affect bacteria densities in the receiving waterbody.

STATISTICAL THRESHOLD VALUE (STV): The STV approximates the 90th percentile of the water quality distribution of a bacterial population that should not be exceeded by more than 10 percent of the samples taken.

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

WQS VARIANCE: 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 WQS variance.