Executive Summary:

Strawman for EPA review of

~~Proposed Revisions to~~ Santa Ana Region's Basin Plan for

Recreational Use Classifications and Related Water Quality Objectives

Background

In mid-2000 U.S. EPA encouraged the Santa Ana Regional Water Quality Control Board to "update bacteria indicator organism objectives for REC1 and REC2 beneficial uses" at the next triennial review.[1] Specifically, EPA recommended using *E. coli* and/or Enterococci as these bacteria were "better correlated to health effects related to water-contact recreation."

At the next triennial review (2002), the Regional Board received significant public comment on the issue and determined that updating the bacteria indicator organism objectives in the Basin Plan should be a high priority. Stakeholders strongly recommended that the Regional Board should conduct a comprehensive scientific and technical review of all water quality standards in the watershed. In late 2002, a Task Force was formed to undertake and fund such a review for pathogen indicator objectives. The Santa Ana Watershed Project Authority (SAWPA) is serving as the Task Force administrator.

All interested stakeholders were invited to join the Task Force and participation was not conditioned on providing any financial contribution. Representatives from many of the major water and wastewater agencies, stormwater management agencies, environmental interest groups, the Regional Board and U.S. EPA have been meeting regularly for four years to develop appropriate recommendations for updating recreational water quality standards for freshwaters in the Santa Ana Basin Plan.

From the outset, all Task Force participants agreed to seek only solutions that comport with state and federal regulations. These requirements were summarized into a set of stipulated conditions that governed the discussion of alternatives (copy attached as Appendix A). In addition, considerable emphasis was placed on following U.S. EPA's recommended water quality criteria for bacteria[2] and other related implementation guidance even where such guidance was not yet final.[3] The latter was particularly helpful in developing a systematic approach to distinguish between primary contact recreational uses (REC1) and secondary contact recreational uses (REC2).

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[1] See U.S. EPA-Region IX's letter to the State Water Resources Control Board dated May 30, 2000, pg. 8

[2] U.S. EPA. Ambient Water Quality Criteria for Bacteria - 1986. (EPA 440/5-84-002)

[3] U.S. EPA. Implementation Guidance for Ambient Water Quality Criteria for Bacteria. May, 2002 Draft (EPA-823-B-02-003) and November, 2003 Draft (EPA-823-B-03-XXX)

One important addition to the REC1 definition is the acknowledgement that, per federal regulations, all surface waters are initially assumed to be capable of supporting primary contact recreation and should be so designated.[5] If state authorities believe such a designation is inappropriate because recreational uses cannot be achieved in certain waterbodies, then such uses can be downgraded or deleted only after performing a Use Attainability Analysis (UAA). The Regional Board must amend the Basin Plan, through a formal public process, in order to revise water quality standards. The State Water Resources Control Board, the California Office of Administrative Law, and the U.S. EPA must also approve all Basin Plan amendments.

The only substantive change between the current REC1 definition and the proposed REC1 definition is that "fishing" was deleted from the list of example activities identified as primary contact recreation. This was done in recognition of the fact that different types of fishing activities incur different risks of immersion and ingestion. For example, fishing in waders or from float tubes, where the angler is in direct and prolonged contact with the water, would continue to be considered primary contact recreation (REC1). However, fishing from the shoreline or from boats involves very little direct water contract and is more likely to be protected as a REC2 activity. Since the list of example activities is not exclusive, it was decided to omit "fishing" altogether rather than try to specify all of the different variants that may occur. It is not the act of fishing, per se, that determines whether an activity is REC1 but, rather, the degree to which the anglers come into contact with the water and the risk that such contact will lead to ingestion of water. Federal guidance recommends that fishing activities be protected as "Secondary Contact" recreation.

Recommendation #2

The definition of "Non-Contact Recreation - REC2" should not be changed. The current definition reads:

> "Non-contact Water Recreation (REC2) waters are used for recreational activities involving proximity to water, but not normally involving body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities."

[5] See 40 CFR 131.10(j)

The REC-X designation is intended to differentiate between waterbodies that have undergone a formal UAA and Regional Board review and approval as opposed to situations where a waterbody has not yet been designated REC1 or REC2. In the latter case, such waters are presumed to be capable of supporting all recreational uses until the Regional Board declares otherwise on the basis of a UAA and after completing the necessary public hearing process. In addition, any change to water quality standards requires approval by the State Water Resources Control Board, the California Office of Administrative Law and the U.S. Environmental Protection Agency.

Recommendation #4

Chapter 4 ("Water Quality Objectives") of the Basin Plan should be revised to add the following narrative water quality objective for pathogens for all surface waters designated REC1 or REC2:

> "Waste discharges shall not cause or contribute to excessive risk of illness from microorganisms pathogenic to human beings."

Bacteria, viruses, protozoa and parasites occur naturally in the environment and may also be present in waste discharges. Some of these organisms, particularly those that originate from human sources, are pathogenic, that is, they may cause illness to exposed persons. The presence of these pathogens in waterbodies may impair recreational uses and/or municipal water supplies. Direct measurement of all pathogens is impractical because standard methods have not yet been approved, nor have water quality criteria been established for each and every microorganism that may be harmful. Therefore, EPA recommends using surrogate indicators, such as *E. coli* concentrations, to demonstrate that water quality is adequate to protect human health against an excessive risk of illness to those making frequent and/or prolonged contact with the water where the risk of ingesting the water is reasonably possible.

Over time, the recommended surrogate indicator has changed from total and fecal coliform to *E. coli* and Enterococci. On-going epidemiological research may demonstrate that there are better direct or surrogate indicators available.[9] Adopting a narrative objective for pathogens, in addition to numeric water quality objectives for surrogate indicators, will provide greater regulatory support and flexibility to specify permit limitations and monitoring requirements (e.g. different water quality monitoring technologies).

[9] See, for example, U.S. EPA. Report of the Experts Scientific Workshop on Critical Research Needs for the Development of New or Revised Recreational Water Quality Criteria. June 15, 2007 (EPA 823-R-07-006)

Recommendation #6

Chapter 4 ("Water Quality Objectives") of the Basin Plan should be revised to delete the current numeric water quality objective for fecal coliform bacteria in Inland Surface Waters designated REC1.

Consistent with EPA guidance and recommendations, the current water quality objective for pathogen indicators, expressed in fecal coliform units, is obsolete and should be updated. For freshwaters designated REC1, *E. coli* should replace fecal coliform as a numeric water quality objective for pathogen indicator bacteria (see Recommendation #5). The TMDLs developed to address pathogen impairment in the Santa Ana region already include a numeric target for *E. coli* and were previously approved by U.S. EPA.[12]

Recommendation #7

The current fecal coliform objective established to protect beneficial uses designated REC2-only should not be changed. However, some clarification from U.S. EPA is required regarding the most appropriate method for calculating an "average" for bacterial data.

Rationale:

U.S. EPA has acknowledged that there are insufficient useful data available to calculate or recommend an E. *coli* or Enterococci criteria to protect secondary contact recreation.[13] Therefore, states have wide discretion to adopt their own water quality criteria for these waterbodies.

Some states have elected to develop secondary contact criteria by multiplying the primary contact standard by a factor of five (e.g. 126 x 5 = 630 *E. coli* /100 ml). U.S. EPA guidance does not formally recommend this procedure but has approved it in some states. The Task Force recommends against this approach because there is no scientific or technical basis for selecting the multiplier factor.

[12] Santa Ana Regional Water Quality Control Board Resolution No. RB8-2005-0001. TMDL for Bacterial Indicators in the Middle Santa Ana River Watershed Waterbodies (August 26, 2005); Approved by U.S. EPA on May 16, 2007.

[13] U.S. EPA. Implementation Guidance for Ambient Water Quality Criteria for Bacteria. May, 2002 Draft (EPA-823-B-02-003) and November, 2003 Draft (EPA-823-B-03-XXX)

Recommendation #8

The current total coliform objective established to protect surface freshwaters designated MUN (municipal water supply) should be deleted. However, the current total coliform objective for groundwaters designated MUN should remain unchanged in the Basin Plan. The uses presently designated MUN would also remain unchanged.

Rationale:

The current total coliform objective was adopted in the mid-70's at a time when water purveyors could divert surface waters to municipal use without additional treatment. In late 1998, U.S. EPA adopted Interim Enhanced Surface Water Treatment requirements into the National Primary Drinking Water Regulations.[17] Designed to improve control of microbial pathogens in drinking water, the new regulations require surface water to meet filtration and disinfection standards before being served to the public. Consequently, the numeric coliform objective for surface waters is obsolete and unnecessary.

Many of the surface waters in the Santa Ana region were exempted from the MUN designation under the State Board's Sources of Drinking Water Policy in 1989.[18] Most other surface waters (primarily small mountain creeks or large lakes and reservoirs) are also designated REC1 and would continue to be protected by the numeric *E. coli* objective in lieu of the total coliform criteria. In addition, should more protection be required, the Regional Board may rely on the narrative pathogen objective (described in Recommendation #4) to impose the necessary restrictions.

Most NPDES permits and Waste Discharge Requirements (WDRs) contain effluent limits intended to protect instream surface receiving water beneficial uses and affected groundwater supplies from microbial contamination Adoption of new water quality objectives to protect recreational uses is not intended to alter the level of wastewater treatment required to assure continuing compliance with permit requirements based on Title-22 of the California Code of Regulations. The effluent limits for tertiary treatment will continue to be governed by the need to provide "adequate disinfection" and by anti-degradation and anti-backsliding regulations. Nothing in any of the previous recommendations should be construed to change the level of wastewater treatment required to comply with Title-22 of the California Code of Regulations related to the discharge and reuse of reclaimed water.

[17] 63 Fed. Reg. 241, pg. 69478 (December 16, 1998)
[18] California State Water Resources Control Board Resolution No. 88-63 and Santa Ana Regional Water Quality Control Board Res. No. 89-42.

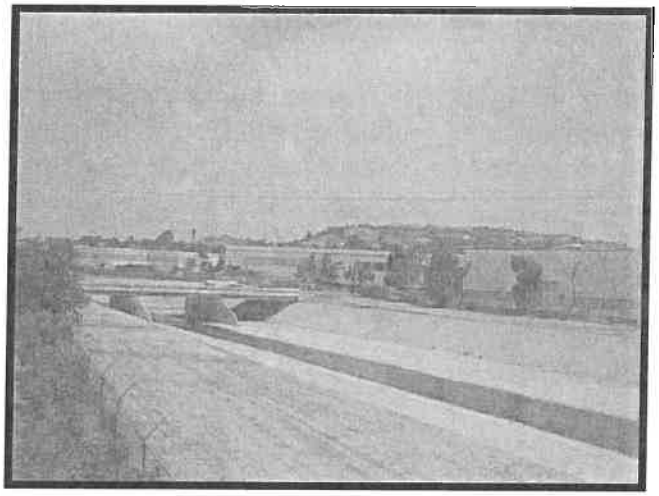
Rationale:

Recent EPA guidance indicates SSMs were developed as surrogate assessment tools to be used when there were inadequate data to calculate an appropriate geometric mean. The SSMs were not intended to serve as recommended water quality criteria pursuant to Section 304(a) of the Clean Water Act.[22] Therefore, the Task Force recommends that existing water quality monitoring programs[23] be reviewed and enhanced, where necessary, to ensure there are adequate data to calculate a proper geomean at relevant points of compliance.

Where data from individual samples exceeds EPA's recommended SSMs, the Regional Board may recommend or require more sampling if representative data are not already available from another proximate location. Comprehensive monitoring will provide superior information for evaluating use attainment compared to reliance on single sample maxima to assess potential impairment.

Recommendation #11

Reclassification of the section of Temescal Creek from the Cota Street crossing in Corona upstream to its confluence with the Arlington drain. Final recommendation dependent on results of an on-going Use-Attainability Analysis.

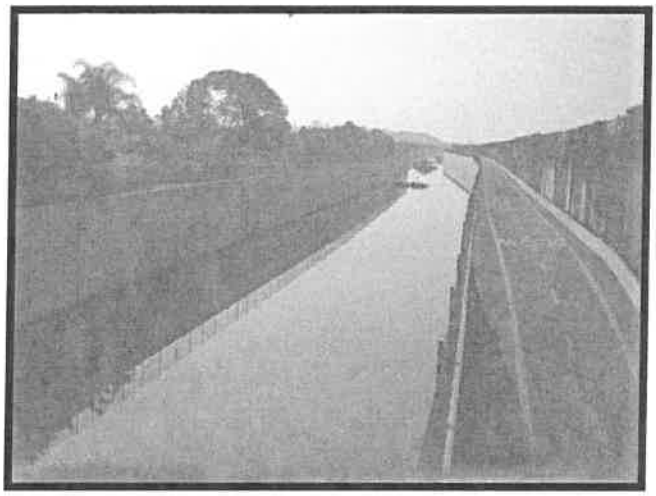


[22] U.S. EPA – Office of Water. Water Quality Standards for Coastal Recreation Waters: Using Single Sample Maximum Values in State Water Quality Standards. EPA-823-F-06-013. August, 2006.

[23] There are many on-going water quality monitoring programs in the Santa Ana River watershed designed to quantify bacterial concentrations in lakes and streams. These include routine monitoring performed by MS4 permittees, regular monitoring required to implement approved TMDLs, and other monitoring conducted as part of various special studies.

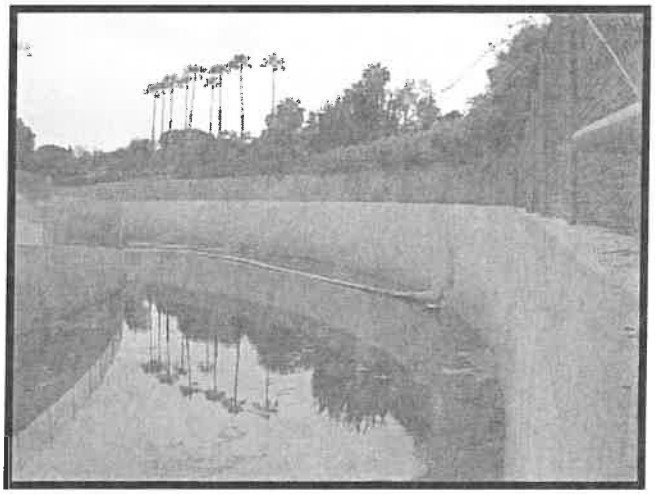
Recommendation #14

Classification of the section of the Greenville-Banning Channel from its confluence with the Santa Ana River just below Victoria Ave. upstream to where the channel crosses under the 405 Freeway. Final recommendation dependent on results of an on-going Use-Attainability Analysis.



Recommendation #15

Classification of the section of Santa Ana Delhi channel from ~~its confluence~~ with upper Newport Bay to the point where it goes under~~ground at Flower~~ St. Final recommendation dependent on results of an on-going Use-Attainability Analysis.



Appendix A:

Regulations Governing Changes to Water Quality Standards in the Basin Plan

1) Appropriate beneficial uses must be designated. (40 CFR 131.10a)

2) Uses must be designated where the use is actually being attained. (40 CFR 131.10i)

3) Water quality objectives must protect the designated uses. (40 CFR 131.11a)

4) Water quality objectives must protect the most sensitive use. (40 CFR 131.11a)

5) Existing uses may not be downgraded or deleted. (40 CFR 131.10-h-1)

6) The level of water quality necessary to protect existing uses shall be maintained. (40 CFR 131.12a)

7) Existing uses are those uses actually attained in the water body on or after November 28, 1975, whether or not they designated. (40 CFR 131.3e)

8) REC1 and Aquatic Life Habitat (COLD and/or WARM) are presumed to be attainable (40 CFR 131.10d)

9) Failure to designate REC1 and COLD or WARM requires a UAA (40 CFR 131.10j)

10) Water quality objectives must protect downstream beneficial uses (40 CFR 131.10b)

11) Deleting or downgrading a designated use requires a UAA (40 CFR 131.10j)

12) Subcategorizing with less stringent water quality criteria requires a UAA (40 CFR 131.10j)

13) Uses are deemed attainable, and may not be removed, if the use can be achieved with cost-effective and reasonable best management practices for nonpoint source control. (40 CFR 131.10d and 40 CFR 131.10-h-2)

14) May delete, downgrade or subcategorize a use only under certain conditions (40 CFR 131.10g)

15) Seasonal uses are allowed. (40 CFR 131.10f)

16) EPA's recommended water quality criteria are presumed to be protective for the associated designated uses. (40 CFR 131.11)

17) States may adopt and implement mixing zones, variances and low flow policies (40 CFR 131.13)

18) Regional Board must consider factors identified in Section CWC §13241, including economics, when adopting water quality objectives to protect beneficial uses.

19) Undesignated waterbodies have the same beneficial uses as the designated waterbodies to which they are tributary (SAR Basin Plan, pg. 3-5)

20) Where current water quality is better than necessary to protect designated uses that existing higher quality must be preserved unless allowing lower quality is demonstrated to continue to protect existing uses and would provide "maximum benefit to the people of California." (SWRCB Res. No. 68-16)