

BWQW 303(d) List Issues

The following comments are offered by the County of San Diego in response to the draft document "303(d) Lists: Issues". The County agrees that consistency in the development and application of 303(d) listing protocols is necessary and desirable to protect the quality of our recreational waters. However, we have concerns that the methodology currently proposed by the BWQW will neither promote consistency nor reflect the best use of available data and information toward this end.

Our primary concern is in the way the BWQW has proposed that different types of available data be utilized in conducting 303(d) assessments. We are specifically concerned with the initial assumption that measures of beneficial use loss (e.g., posting days) can and should be used exclusively, rather than in combination with, both the direct use of bacterial standards (e.g., Ocean Plan, AB411, or AB538 standards) and bacterial indicator data in assessing impairment. Based on this assumption, only the use of posting days is further considered by the BWQW as a potential means of making Section 303(d) determinations. Reliance on the use of this single measure will inevitably lead to a number of potential errors and, more importantly, inconsistency in the assessment of recreational water segments both within and between regions.

It is our position that the preferable method for conducting 303(d) assessments includes a careful assessment of all available data and information. While we agree that administrative measures (exceedances of standards and beach postings) play an important role in the overall assessment of recreational water quality, the confirmation of 303(d) impairment must be based on the direct analysis of the water quality monitoring data from which both standards exceedances and postings are derived. While admittedly more difficult and time-consuming, assessing the actual monitoring data from which posting days are determined is the only reliable way of accurately assessing failure to attain water quality standards resulting from "chronic multi-source contamination" of recreational water bodies.

Limitations on the Use of Beach Posting Days as an Assessment Measure

Beach posting days are neither an accurate nor direct measure of chronic contamination. To rely on this or any other indirect measure, rather than the actual data on which they are based, a nexus to water quality conditions must be clearly and consistently demonstrated. We do not believe that an adequate nexus has been demonstrated to justify the use of posting days as a measure of impairment. Further, the use of beach posting days appears to be somewhat arbitrary for a number of reasons including the following:

- a. Differences in Laboratory Methods. The time needed to obtain results is dependant on the laboratory test method utilized. Since

28 7 2011

5 out of 52
7 out of 31

postings must remain in place until sample results confirm that a waterbody is safe for recreational contact, the total posting time will depend on the laboratory method used. Confirmation of results using the Multi-tube fermentation method will therefore generally cause one additional day of posting over an otherwise identical scenario using membrane filtration or chromagenic substrate methods.

Because a variety of testing methods are utilized within San Diego County we are concerned that the proposed methodology will cause inconsistencies in the application of 303(d) listing criteria within our own region.

- b. Sampling and Resampling Intervals. Depending on the policies, protocols, and resource limitations of the agencies conducting sampling, the frequency of both sampling and resampling intervals can vary significantly. While most beaches are sampled weekly during AB411 season, some are sampled more frequently, including up to daily. Beaches sampled more frequently will have a correspondingly higher probability of being posted. Similarly, resampling intervals can vary depending on agency resources, e.g., some are able to conduct follow-up sampling on weekends rather than waiting till Monday.
- c. Managerial Discretion. Under AB411, decisions to utilize the 30-day geometric mean as a trigger for posting are discretionary. Various agencies have naturally adopted different posting policies and practices in response to this discretion. These differences are crucial because a posting based on the exceedance of a 30-day geometric mean standard will normally result in a minimum of seven additional posting days for a particular beach segment. Additionally, because the 30-day geometric mean standards are lower than the single sample standards, some beaches may have higher numbers of posting days in spite of having lower bacterial densities if the postings are based on 30-day geometric mean exceedances alone.
- d. Lack of Correlation to Environmental Conditions. The number of days a beach is posted does not correlate to the number, magnitude, or duration of the exceedances from which postings are derived.

Recommended Alternative Assessment Methodology

The following method of interpreting data is recommended. The County of San Diego supports the following method of interpreting data due to the inherent disparity between beach postings and bacterial exceedances. :

STEP 1: SCREENING

The purpose of this step is to initially screen all sites to determine whether they should be subject to further, more detailed analysis. This step sets a screening-level target of 10%¹. That is, if more than 10% of routine sampling events result in a posting, the site is referred for further analysis. It is intended to be conservative in that it allows for the grouping of multiple types of exceedances (e.g., from TC, FC, and enterococci) as part of the screening.

It is recommended that both single sample and log-mean standards be included in this step.

The following assumptions are used in conducting the screening analysis:

- Do not use Beach Closure and Posting Reports for initial screening.
- Closures are not counted.
- Posting events, rather than posting days, are counted.
- Posting events are not segregated by indicator (e.g., one posting event for TC plus two for enterococci counts as three total posting events).
- Only posting events resulting from routine sampling are included.

Depending on the site, data may or may not be collected year-round. In all instances AB411 data should be available and utilized.

AB411 Season Data Only

The number of posting events (not posting days) should be totaled for each AB411 season for which sampling has been conducted. A minimum of three seasons should be included in the analysis, but all years for which a record exists should be included.

¹ The County has not chosen to use the 4% figure recommended by the BWQW. First, the 4% figure derived from the Bight 98 Summer Study is related only to the number of samples collected on "sandy, open beaches least affected by urban runoff discharges". Second, sampling occurred only during the month of August. Statistically this is a limited data set representing only one time segment of one dry weather season, which, for Southern California, does not represent the variations in weather and rain patterns the region experiences between April 1st and October 31st.

Only routine sampling should be included in the analysis (no follow-up samples, sewage-related, or other data). At a minimum, this will be weekly sampling (31 events), but more frequent sampling should be reflected if applicable.

Single Sample Standards. If 3 or more weekly sampling events (31 weeks times 10%) result in an exceedance of a single sample standard, the site may need to be referred for further analysis (see below). If the site is sampled more frequently, the screening target should be adjusted accordingly to represent 10% of total sampling events.

30-Day Geometric Mean Standards. If 2 or more weekly sampling events (16 weeks [21 minus 5] times 10%) result in an exceedance of a 30-day geometric mean standard, the site may need to be referred for further analysis (see below). If the site is sampled more frequently, the screening target need not be adjusted, but the total number of samples used to calculate the 30-day geometric mean will be greater.

If either of the above targets, individually or in combination, is exceeded in two or more years, the site should be referred for further analysis (Step 2).

Year-Round Data

If year-round monitoring is conducted on a routine frequency, all sampling events should be included in the screening. Depending on whether or not the frequency of sampling varies, these data may need to be segregated by season.

If the sampling frequency is the same year-round, the guidelines discussed above for the AB411 season are applicable except that the total duration is increased to 52 weeks. If weekly sampling is conducted, a target of 5 exceedances (52 weeks times 10%) should be used. If winter sampling is on a lesser frequency than AB411 sampling, posting event data should not be considered here since the sample sizes will be too small for confident analysis.

As above, both single sample and 30-day geometric mean exceedances should be counted. If either of the above targets, individually or in combination, is exceeded in two or more years, the site should be referred for further analysis (Step 2).

STEP 2: IN-DEPTH ANALYSIS

The purpose of this step is to further assess the status of sites using a full range of available data and information. Described is an alternative methodology that the County believes better addresses the variability and uncertainty of available data. We very clearly recognize the need for methods which can be applied easily and consistently within and across regions. However, a myriad of factors will influence each of these measures. In short, there is no way to reliably

establish "triggers" for listing which will adequately take all relevant factors into consideration. We believe the role of best professional judgment in conducting these assessments cannot be overstated.

Three types of analyses should be conducted:

- Loss of Beneficial Use
- Water Quality Assessment
- Best Professional Judgment

In no instances, should rigid, pre-established criteria for listing be utilized. It is essential that all lines of evidence be carefully considered in conducting these evaluations.

- Loss of Beneficial Use. Like Step 1 above, this step examines the frequency and distribution of administrative exceedances (posting events). As previously noted, the many factors influencing these numbers make it difficult to use "counts" as a direct measure of beneficial use loss. In contrast to Step 1, data corresponding to individual indicators should be segregated and analyzed separately. At a minimum, this step should result in a characterization of the relationship of individual indicators to posting events.
- Water Quality Assessment. Before a recommendation for 303(d) listing can be made with confidence, it is crucial to examine all available water quality data to characterize receiving water quality and its relation to loss of beneficial use. These data should be subjected to a full range of appropriate statistical analyses (trends, duration of events, magnitude of exceedance, variability, confidence, accuracy, etc.) that consider all relevant factors (e.g., correlation to rainfall, etc.).
- Best Professional Judgment. In addition to those factors described above, it will be necessary to carefully examine other relevant data and information (e.g., breaching of sand bars, visual observations, etc.). Ultimately, recommendations for further action can only be based on extensive dialogue between Regional Board staff, recreational water managers, and water quality managers.

Possible Outcomes. For each site, the analysis will yield one of three possible outcomes:

- No Action. In some instances, an in-depth evaluation will indicate that a site has not failed to meet its beneficial uses or that non-attainment is not associated with "chronic multi-source contamination". If either of these conclusions is reached with reasonable certainty, the site should be removed from further consideration.

- 303(d) Listing. If a weight-of-evidence demonstrates the consistent non-attainability of beneficial uses at the site, as well as likely “chronic multi-source contamination”, the site should be recommended for consideration to the 303(d) list.
- Referral to a Monitoring Priorities List. If evaluation of a particular site is inconclusive, e.g., there is inconclusive evidence to recommend “no action” or placement on the 303(d) list, the site should be recommended for placement on a Monitoring Priorities List. Depending on the specific circumstances, this may involve monitoring the site over a greater number of seasons to increase the overall data set or changes to the monitoring program where existing frequencies are not sufficient (e.g., during the winter).

Conclusions and Recommendations

Discussions previously initiated by the Beach Water Quality Workgroup (BWQW) drive home the fact that currently available methodologies are limited in their ability to accurately measure or predict risk to recreational users. This underscores the need for caution rather than conservatism in conducting section 303(d) assessments. Recreational water management and Section 303(d) listing are not the same thing. In the absence of more definitive measures of risk to bathers, the use of conservative bacterial indicators is appropriate for routine monitoring and management of recreational waters. However, the move to 303(d) listing should be made with extreme caution. Based on our analysis, the approach advocated by the BWQW is overly conservative and will likely result in the erroneous listing of many recreational waters or placement on a Monitoring Priorities List.

After careful review, the County has concluded that the approach proposed by the BWQW is not sufficient for use as a standard methodology for assessing Section 303(d) status for recreational waters. This is based primarily on our belief that no suitable proxy exists for the direct and careful analysis of actual monitoring data, a critical step which the proposed methodology does not incorporate. While the use of beach posting days is clearly convenient, it is based on simplistic assumptions which do not reflect the reality and the complexity of the problem under consideration.

We recognize that current management strategies and measurement tools leave many important questions unanswered. We encourage the BWQW and the SWRCB to pool efforts and knowledge to continue identifying better methods of analysis of water quality impacts and their relationship to beneficial use loss. This would help Health agencies and water quality managers make better, more informed decisions.