San Diego Bacteria TMDL Meeting, 09/10/15

The meeting summary is organized around major points in the meeting agenda, which is included at the end of the meeting summary, along with a list of attendees. Agreements are **highlighted in bold**. Action items are listed at the end of the meeting summary.

1. Introduction and purpose of meeting

The purpose of the meeting was to:

- Discuss key decision points and options related to different aspects of the TMDL
- Provide an opportunity for the small group to meet to discuss the overall schedule

Notes of the previous two workgroup meetings have been distributed to participants but are still under review.

2. WQOs and TMDL targets overview

Jimmy Smith (Board) stated that they desire that the TMDL and water quality objectives (WQO) focus on public health and its protection, while avoiding unintended consequences. The WQOs, TMDL targets, and implementation provisions should all be linked.

Chris Minton presented background and options related to specific aspects of the TMDL previously summarized in the document, "Draft – WQOs Decision Discussion Handout – 2015-8-31.doc." Topic numbers in the following notes reflect those used in this document.

1. WQO indicators

The TMDL includes both creeks and beaches; for the latter, the TMDL can add to but not replace requirements of the state's Ocean Plan.

Discussion of the three options presented included the following points:

- Enterococcus
  - This indicators almost always exceeds the current objective in fresh water
  - Because risk is not always high everywhere, enterococci therefore send a misleading signal and is not an effective indicator, particularly because a high exceedance rate at reference sites suggests it does not reliably point to human sources of contamination
  - Selection of enterococci for fresh water would produce unintended consequences
- Option 1: Maintain existing indicators
  - This is not a likely option because the working assumption is that the USEPA 2012 criteria will be implemented; the real question then would be whether to use both *E. coli* and enterococci for fresh water (Option 2) of *E. coli* alone (Option 2)
- Option 3: Use *E. coli* for fresh water and enterococci for salt water
  - The Santa Ana Regional Board has adopted *E. coli* for fresh water and this has been approved by the State Board
  - E. coli is not perfect and has regrowth issues, but is a better indicator than enterococci
- Long-term goal

- Jimmy Smith (Board) said that the long-term goal is to have the capability to measure the pathogens themselves, which would provide a more direct measure of human health risk, and to move away from the current indicators
- A risk-based approach that stated targets as risk levels (e.g., probability of illness) rather than as concentrations of specific indictors, might allow for more easily replacing indicators as the science improves. An analogous approach was taken by the Sediment Quality Objectives policy, in which the specific thresholds that were part of the multiple-lines-of- evidence objective were included in technical guidance that can more readily be revised

2. Health risk level for WQOs

Discussion included explanations of how the USEPA arrived at the two alternative illness risk levels in the 2012 criteria. The risk levels are those at which the analyses were able to detect a statistically significant difference in illness rates between the exposed and unexposed populations. Thus, different studies with different datasets could easily detect differences at a different (higher or lower) illness rate. Some participants noted that the epidemiology studies used to develop the 2012 criteria had substantial differences from the San Diego region in terms of setting and contamination sources.

The USEPA did not provide a detailed narrative or rationale for whether or how these illness rates are protective of the beneficial use. While the State Board is apparently leaning toward using the 32 illness rate, the choice between the two will be a societal judgment that will be informed by the epidemiological data as well as the potential costs of complying with one or the other of the two options. **The workgroup agreed that the consulting team would examine the implications of using the 32 vs. the 36 illness rate by examining potential exceedance frequencies at a number of creeks and beaches**. This analysis will take into account the availability of E. coli monitoring data from fresh water sites such as Aliso Creek and the San Diego River.

3. Method of incorporating risk-based framework

The main difference between the two options presented is that the first allows for the use of a risk level in the WQO, as described above, which could streamline the process of updating the allowed indicators. This is because the risk level, rather than the level of an indicator, becomes the target. Switching to an improved indicator that allows for better linkage to the risk level, would not require a change to the Basin Plan as long as the risk level itself remains the same.

Board staff were receptive to this idea but said that making a choice between the two options would require input from the Board's legal counsel. **The workgroup agreed to frame a more formal description of how a risk-based framework could be used in the TMDL**. Jimmy Smith (Board) noted that, in the future, more advanced monitoring methods that, for example, measured viral pathogens directly, could result in very different illness rate endpoints depending on their sensitivity and statistical characteristics. Brock Bernstein (team) noted that there is broad knowledge and experience in other public health arenas regarding setting policy targets that could help provide guidance to the Board in the future if it becomes possible to directly and more accurately measure health risk.

4 Selection of WQOs

This topic was divided into two categories, use of a geometric mean or single sample/statistical threshold values (STV). **The workgroup agreed that future discussions of this and related topics will account for different settings (freshwater, marine, bays) where this has important implications for the policy**. Jimmy Smith (Board) said that decisions about the choice between options will require more detailed information about their implications.

- Geomeans

- Geomeans can be calculated over a discrete or running period of time
- Fresh water may pose calculation challenges because of data gaps to dry weather or high flows; this is different than beaches where monitoring is more continuous
- In contrast, wet weather often includes more intensive follow-up sampling after storms, which could affect the geomean calculation. The consulting team will develop options for calculating geomeans that account for varying intensities/frequencies of monitoring events
- It was not clear whether the TMDL could use a different averaging period for beaches than is used in the Ocean Plan
- USEPA decided not to include guidance on the minimum number of samples needed in the 2012 criteria; however, programs generally default to weekly sampling for logistical and statistical reasons
- In terms of combining data from wet and dry weather, assumptions about the allowable illness rates would be the same for both conditions, but the implementation provisions of the TMDL could differ between wet and dry conditions
- For a number of reasons, it would be useful to flag wet and dry weather data to enable more targeted analyses, BMP evaluations, etc. and to better identify the conditions that are controlling for
- It might be useful to think about seasonal objectives (e.g., winter dry)

- Single sample/Statistical threshold values
  - The STV approach would affect the exceedance frequency due to its lagging effect on the calculation of the STV and the continued influence of a single high value
  - The example table illustrated how the same set of monitoring data would produce strikingly different exceedance rates depending on whether the single sample or STV approach was used to assess compliance
  - This is another example of an unintended consequence
  - Jimmy Smith (Board) requested that the example table be expanded to include a column showing how the geomean compares to the single sample and STV results
- The consulting team will prepare a set of scenarios showing a range of comparisons across the options presented

5. Allowable exceedance frequency calculation updates

Discussion focused primarily on the allowable exceedance rate estimated from reference locations. Ruth Kolb (City SD) pointed out that the Leo Carrillo study that produced the 22% reference exceedance rate was based on a wet weather definition that included 0.1 inch of rainfall. However, the San Diego TMDL uses a definition of 0.2 inch of rainfall. The exclusion of data between 0.1 and 0.2 inch of rainfall should result in a different estimate of background exceedance frequencies, yet the TMDL uses the 22% exceedance frequency calculated based on the 0.1 inch of rainfall definition.

The reference exceedance percentage will be recalculated using the 0.2 inch of rainfall cutoff and the STV as part of the set of scenarios being prepared by the consulting team.

3. Background on WQO implementation provisions

This item was not discussed because of time constraints.

4. Summary of reference creeks and beach studies

This item was not discussed because of time constraints.

5. Next steps

Agreed on next steps include:

- The consulting team would examine the implications of using the 32 vs. the 36 illness rate by examining potential exceedance frequencies at a number of creeks and beaches
- City of San Diego representatives will frame a more formal description of how a risk-based framework could be used in the TMDL
- The consulting team will expand the example table (single sample vs. STV) to include a column showing how the geomean compares to the single sample and STV results
- The consulting team will prepare a set of scenarios showing a range of comparisons across the options presented

6. Parking lot issues for future discussion

- How should monitoring be designed to facilitate assessment of compliance?
- Is there a need to monitor creeks that are diverted in dry weather to a treatment plant?
- How will decisions related to bacteria compliance affect compliance with other policies?
- Examine the laboratory methods that would be defined or recommended in the updated TMDL

7. Next meeting date

The next workgroup meeting will be October 7, from 1:00 – 3:30 PM, at the Regional Board office.

Attendees

Regional Board: Cynthia Gorham, Jeremy Haas, Michelle Mata, Jimmy Smith
San Diego City: Ruth Kolb
San Diego County: Jo Ann Weber
Orange County Public Works: Chris Crompton, Jian Peng
Team: Dustin Bambic, Brock Bernstein, Clint Boschen, Ashli Desai, Chris Minton

Agenda
San Diego Bacteria TMDL Workgroup Meeting
San Diego RWQCB
2375 Northside Dr. #100
Board Room
Meeting #6-September 10, 2015 10:00 am to 1:00 pm

1. Introductions (10:00-10:05 am)
2. WQOs and TMDL Targets Overview (10:05 am-11:05 am)
    a. Purpose: Provide overview of potential key issues and decisions related to WQOs and TMDL targets for discussion and to identify if any other issues need to be considered.
    b. Handout: Key decisions overview
    c. Relevant studies: Reference Reach incorporation will be directly discussed. Future discussions may need to consider wet weather epi studies and QMRAs.
    d. Decisions: No decisions are expected to be made, but may be an outgrowth of the discussion.
3. Background on WQO Implementation Provisions (11:05-11:35 am)
    a. Purpose: Provide background on WQO implementation provisions such as High Flow Suspension and reference system/natural source exclusion approach.
    b. Handout: None
    c. Relevant studies: No relevant studies will be discussed during this background item.
    d. Decisions: None
4. Summary of Reference Creeks and Beach Studies (11:35 am-12:05 pm)
    a. Purpose: Discuss reference creeks and beach studies dataset, historical reference study datasets, and considerations for TMDL.
    b. Handout: None
    c. Relevant studies: Reference watersheds
    d. Decisions: None
5. Next Steps (12:05-12:10 pm) and Adjournment of Large Workgroup

Kick off Meeting of Small Work Group (12:10 to 1 pm)

1. Discussion of Process and Schedule (12:10-1:00 pm)