

**Beaches and Creeks TMDL Cost-Benefit Analysis
Steering Committee Meeting
April 25, 2017**

Steering Committee Members Present

Jeremy Haas, San Diego Regional Water Quality Control Board
Jimmy Smith, San Diego Regional Water Quality Control Board
Todd Snyder, County of San Diego, Watershed Protection Program
Ruth Kolb, City of San Diego, Storm Water and Transportation
Rob Hutsel, San Diego River Park Foundation
Jian Peng, County of Orange, Stormwater Quality Planning
Ted Shaw, Atlantis Group, representing San Diego County Taxpayers Association

Supporting Roles

Lewis Michaelson, Katz & Associates
Bree Robertoy, Katz & Associates
Chad Praul, Environmental Incentives
Evan Branosky, Environmental Incentives (participating via phone)
Mark Buckley, Eco Northwest (participating via phone)
Jo Ann Weber, County of San Diego
Ken Schiff, Southern California Coastal Water Research Project
Vickie Kalkirtz, City of San Diego
Helen Yu, San Diego Regional Water Quality Control Board
Michelle Santillan, San Diego Regional Water Quality Control Board
Jeff Soller, Soller Environmental (Participating via phone)
Clint Boschen, TetraTech
David Pohl, ESA (participating via phone)
Tony Hancock, Brown & Caldwell (participating via phone)

Communication Plan Update

L. Michaelson provided an update on the Communication Plan currently in development by the subcommittee and a consultant. The Communication Plan is in its second draft and is under review by the subcommittee. Through the process of developing the Communication Plan, it became apparent that what constitutes success of the cost benefit study from the Steering Committee's perspective needs to be defined at a future meeting.

Technical Advisory Committee

The Technical Advisory Committee (TAC) reviewed the draft Cost-Benefit Analysis (CBA) report and provided comments to the Steering Committee orally on April 10 and 11 and in a written report. The Steering Committee was asked by the facilitator for their impressions of the TAC report. The following are Steering Committee members' responses to that question:

- J. Smith: The CBA is a very long, technical document. The TAC gave us some feedback, but I have no way to independently evaluate how good of a job they did because this process is so new and I am not an expert.
- R. Hutsel: The TAC was clearly thoughtful and took their time. In that way, they did a good job.
- T. Snyder: The written report was consistent with the oral report. The CBA may not be perfect, but it provides new information and a new lens with which to look at the TMDL.

- J. Peng: The TAC put the economic analysis on top when they commented on the overall strength of the CBA. That gave me comfort, since the Steering Committee has expertise in health and science but not economics.
- R. Kolb: I'm glad that the written report matched the oral report.

Meeting Objectives and Process

The consultants are in the process of incorporating TAC and Steering Committee comments into the CBA. They identified seven areas where decisions need to be made to move forward with the CBA. Some recommendations may have schedule and scope implications. The Steering Committee was asked to reach consensus on each decision based on the six levels of consensus handout that the facilitator provided. If consensus was not reached, a quorum of 60 percent, or four votes out of six, would have been required to pass a decision based on the Steering Committee's charter.

The consultant provided recommendations for each decision based on the following criteria:

- Will the potential action substantially enhance the credibility of the CBA?
- Is the potential action likely to result in a change to a major policy action?

The Steering Committee felt that the second criteria was ambiguous, as it is unknown what policy decisions will be impacted by the CBA. They suggested that the second criterion focus on whether the potential action would better inform policy decisions and next steps after the CBA.

Recommended Actions

1. **Consultant Recommendation:** Focus revisions to the stormwater section on better documenting the methods rather than using different methods.

Alternative: Develop and apply new methods to evaluate stormwater scenarios.

- K. Schiff: The TAC talked about whether the modeling should be redone, but the consensus was that it's not worth remodeling until there is a better understanding of sources in the scientific community. The TAC thought the consultant should document and discuss the modeling better in the CBA report.
- J. Smith: The stormwater scenario confidence is more likely in the 3 to 5 range (on a scale of 1-10). The third party validation for cost estimates is less than that based on only two copermittees and a lot of differences between them. We didn't quite get what we wanted overall in the CBA, but we don't have enough time or money to redo the cost estimates. The consultant should speak to that limitation and what could be done in the future to improve them.
 - C. Praul: Water Quality Improvement Plan costs are separate from the costs used in the CBA.
- T. Snyder: This is the same model used for the TMDL. Why isn't it good enough for the CBA?
 - C. Boschen: There have been significant improvements to the model over time due to the availability of more accurate and available data. The modeling is updated to ensure it represents conditions as accurately as possible. There are not as many limitations regarding the loading simulation program as there are for best management practices and the fecal coliform to enterococcus conversion. We did not convert fecal coliform to enterococcus in the model. We can add documentation to the report to reflect that.
- **Action:** The Steering Committee decided to move forward with the recommended action.

2. **Consultant Recommendation:** Revise the human sources analysis to better characterize sources and move away from best professional judgment. Develop a viral load approach rather than using HF183 for transient sources.

Alternative: Enhance the description of current methods and clarify that it is a screening level analysis that uses best professional judgment.

- C. Praul: Even the recommended action would still require best professional judgment. We can do better, but we're not going to be able to get away from it completely.
- K. Schiff: The TAC focused on human sources because it was clear that's where the most benefit is going to come from. The conclusion was that there is thin information here. Until more data are collected, the analysis is not going to get much better.
- J. Smith: This is the biggest concern overall. We need to say something about the extreme nature of the sensitivity inputs (e.g., urban campers and sewer leakage). I'm fine with the alternative, but document the sensitivity. The potential return on investment is large.
- J. Soller: In the last round of analysis, the transient population became an important contributor to risk. One reason it's so sensitive is that we're using an indicator. For sewage, indicators are good to use, but as the population gets smaller, they're not as useful. We could focus on viral contributions. Reductions in flow would reduce viral contributions by the same proportion. Some data are available on annual illness rate and how long viruses remain present in feces. The calculation is straightforward. The hard part is stringing it together in a way that makes sense. It would take some time to figure out (2 to 3 weeks), and the current schedule could not be maintained.
- J. Smith: That approach is an improvement, but it puts an emphasis on population estimates that relied on best professional judgment. Second, this sounds like new analysis. We need to make sure we have time to complete it.
- T. Snyder: I'm concerned about whether this will move us forward. Wastewater leakage assumes a steady state and doesn't consider infiltration. I think we've learned enough to define next steps that are outside the scope of work. I would leave the analysis as-is.
- R. Hutsel: The transient population has a higher illness rate. Since this is such a significant issue, are we getting to a threshold where the credibility of the whole report is questioned? Rather than try to develop a new approach, I would focus on explaining the existing approach better.
- T. Shaw: We can't apply the general population rate of illness to transient populations. I'm also disinclined to developing a new approach.
- **Action:** The Steering Committee opted for the alternative action along with an enhanced discussion of uncertainty and sensitivity.

3. **Consultant Recommendation:** Restructure the document by providing an additional two-page fact sheet, advancing the synthesis of findings, beginning the introduction with a CBA primer and expanding the focus on the scenarios in the introduction.

Alternative: Retain the current structure, but shorten the executive summary and add an additional round of review by the Steering Committee before public release.

- C. Praul: The recommendation can be done within the current scope and schedule. Another round of review will push the scope and schedule.
- R. Kolb: I definitely want a high-level two-page executive summary.
- R. Hutsel: I wouldn't want to remove the executive summary or the introduction.
- M. Santillan Mata: My concern is about readability for the general public.
 - C. Praul: The document is primarily written for the Steering Committee and the TAC. The executive summary will be written for the general public, however.
 - R. Kolb: We have people waiting for this document to be released and it is subject to public information requests.
- J. Smith: There are a lot of typos to address. I would like an additional review by the Steering Committee.
- R. Kolb: I expected to read this in three hours. It took me 11 because it was so hard to understand, even with knowledge of the process.
 - T. Snyder: I'm not sure reading the document in 2 to 3 hours is a reasonable criterion.
- K. Schiff: The report wasn't clear, and the story could have been told better.
- T. Snyder: I'm less concerned about the order. The synthesis of findings needs to be expanded. The executive summary can be improved. The methods section can be explained better.
- J. Haas: A fact sheet would be extraordinarily helpful. If the 'fact sheet' is the executive summary, I wouldn't have a problem. Pulling out the separate studies and putting them into the appendix would help clarify the report.
- T. Shaw: I'm not sure about expanding the discussion about scenarios in the introduction makes sense. Leave the detail in the body of the report.
- R. Hutsel: What is the difference between the fact sheet and executive summary? I'm concerned about condensing this much thought into a two-page fact sheet.
 - The executive summary has more content. The fact sheet would have bullets and graphics for the public.
- **Actions:** The consultant will make the following changes to the document:
 - Make the report more readable
 - Move the Financial Capability Assessment and other separate studies to the appendix
 - Add a two-page standalone fact sheet for the public
 - Keep a longer executive summary, but add results and details to 'tell the story'
 - Begin the introduction with a CBA primer

4. **Consultant Recommendation:** Expand the analysis to provide a 2x2 matrix of high versus low benefits and costs so that the broad sensitivity of the analysis is clear and readers understand more than the "best case" scenario.

Alternative: Retain current focus on "best case" results.

- K. Schiff: In general, the TAC thought there was some sensitivity analysis on benefits side, but not on the cost side. The consultant could add error bars on some (e.g., those that show most benefit) or all analyses. What was presented in the report was the most benefit and least cost. The report didn't include a range depicting if the cost was actually higher and the benefit was actually less.
- C. Praul: We heard that the 2x2 matrix has been successful in the past. It would be one scenario per matrix. Net benefit number would be used. The matrix would show sensitivity based on the location of numbers in the quadrants.

- J. Haas: Why wouldn't this be done for all of the scenarios?
 - C. Praul: We don't have values for all costs. It would entail a lot of effort to come up with the numbers for all watersheds, costs and benefits.
- **Action:** The consultant will provide an initial 2x2 matrix for the 2010 TMDL scenario to the Steering Committee for review within four weeks. The Steering Committee will then decide whether to move forward with developing matrices for the remaining scenarios.

5. **Consultant Recommendation:** Maintain the same approach to the two types of dilution calculations for illness and recreation trips but better document them.

Alternative: Develop an alternative method with greater validation potential and calculate the uncertainty range.

- H. Yu: Are the two calculations different? They both conform to the same ratio for each watershed.
 - M. Buckley: Yes, the expanded documentation will speak to the differences.
- **Action:** The Steering Committee decided to move forward with the recommended action.

6. **Consultant Recommendation:** Enhance interpretation and quality of watershed-specific benefit and cost results to provide insight about policy choices that could be made in different regions.

Alternative: Retain current focus on conveying results across study area.

- C. Praul: The TAC was interested in adding recommendations about potential policy implications to the CBA report. An expanded scope and schedule would be required to separate the results by watershed and expand interpretation in the report. Confidence in results also diminishes at the watershed level.
- J. Haas: Is this recommendation more time intensive than developing the matrix (see recommendation 4)? My concern is with drilling into watershed-specific findings given the overall level of confidence in the results. The report does a good job of pointing out intuitive issues; expanding that discussion will help policy makers.
- T. Snyder: My concern is that we don't have enough data.
- J. A. Weber: It would be an incomplete analysis that would require continuous extrapolation.
- **Action:** The consultant will discuss the value of such an analysis qualitatively (with examples) without performing the analysis at this time. They will also pull back some of the analysis that is watershed-specific due to a low level of confidence.

7. **Consultant Recommendation:** Include recommendations for further research in a qualitative way, rather than doing further sensitivity analysis to determine which data sets and methods are most sensitive.

Alternative: Conduct quantitative analysis of sensitivity to prioritize recommendations.

- C. Praul: The recommended action would include a qualitative discussion of why further study would be valuable. Sensitivity analysis is possible using information from the TAC and additional sensitivity analyses that are already scheduled. Additional analysis is not in the current scope.

- T. Hancock: Doing additional sensitivity analyses now might not provide answers about where to invest. The recommendations would inform future phases and implementation steps.
- H. Yu: If we don't find out the most sensitive parameter, how will we decide where to invest money?
- K. Schiff: The TAC provided recommendations in its report that are mostly data related. In addition to the sensitivity analysis, the project team could make additional recommendations for improving the CBA.
- **Action:** The consultant will expand upon the TAC's qualitative recommendations in addition to existing sensitivity analyses.

Other Comments

- T. Snyder: For the Surfer Health Study, the report should indicate that the epidemiology portion was county-wide. The relationship between fecal indicator bacteria and illness rates was limited to two beaches.
- J. Smith: The analysis tried to understand existing costs and what additional costs would be required of copermitees to meet the TMDL. The same should be done for wastewater. Any existing costs of meeting current regulations should not be counted as additional costs.
- R. Kolb: The City of San Diego's costs were not represented appropriately. We are in discussions with the consultant.

Next Steps

- The consultant will only provide brief responses to Steering Committee comments if submitted in the recommended comment table format. If a Steering Committee member submitted comments outside of the table, they are encouraged to resubmit their comments in the table.
- Orange County must submit its source data by May 1 in order to maintain the current schedule.
- The consultant will update the CBA and provide the revised report to the Steering Committee for another review by May 19.
- Schedule changes will be dependent on the development of the matrix and other changes to the CBA. The final document is tentatively scheduled to be released in August or September.
- The next Steering Committee meeting is scheduled for May 31.
- The public workshop will be scheduled for the second week of July.