

Development of Sediment Quality Objectives for California Bays and Estuaries

Scientific Steering Committee Conference Call

June 16, 2006

Summary of Call and SSC Comments

Call participants (SSC and project representatives)

Peter Landrum (NOAA)
Todd Bridges (U.S. Army Corps of Engineers)
Ed Long (ERL Environmental)
Brock Bernstein
Chris Beegan (SWRCB)
Steven Bay (SCCWRP)
Stephen Weisberg (SCCWRP)

Others present (partial list)

Kevin Buchan (WSPA)
Dave Montagne (Los Angeles County Sanitation Districts)
G. Fred Lee (Lee and Associates)
Lisa Haney (Los Angeles County Sanitation Districts)
Susan Paulson (Flow Science)
Kerry Ritter (SCCWRP)
Fazi Mofidi (LA Dept. Water and Power)

Call Summary

Three SSC members and the Advisory Committee Chair were available for the call. Three other SSC members were unavailable due to schedule conflicts. There was discussion regarding whether there was sufficient SSC participation to continue the call as planned. Chris Beegan stated that he was satisfied with level of input likely to result from the SSC members present. It was decided continue with the call.

Peter Landrum, chair of the SSC, described the goal and format for the call. The purpose of the call is to resolve issues regarding the multiple lines of evidence (MLOE) approach that were identified by the SSC at the last meeting. Specifically, the SSC was asked to address three questions: 1) Are the revisions to the MLOE framework appropriate?; 2) Is the proposed strategy for dealing with missing data appropriate?; Is the proposed framework for use when a benthic tool is unavailable appropriate? Peter also reminded the group that the discussion should be limited to the SSC and science team members. Other participants would have an opportunity to make comments at the end of the call.

Steve Weisberg summarized three types of modifications made to specific portions of the MLOE assessment framework by the science team in response to SSC comments.

1. Boxes 20 and 23 were changed to provide greater weight to the toxicity results; the SSC agreed with the modifications.

2. The SSC agreed that an “inconclusive” designation should be included as an option for box 42 when high toxicity is present without elevated chemistry or benthic disturbance. The science team suggested that no additional outcomes should be considered as inconclusive. Members of the SSC disagreed in that other boxes, specifically 36, 45, 39 should be initially considered inconclusive and examination of additional data not included in the MLOE framework would be required to resolve whether the station was impacted by chemical contamination or by other factors. The SSC remarked that sediment assessment is often complicated and that data beyond those used in the MLOE framework are often needed to resolve discrepancies among the LOE. It was suggested that the policy documents should include guidance regarding what types of analyses should be conducted to resolve inconclusive results. Chris Beegan stated that there were plans to include similar guidance in the SQO program documents.

After the meeting, the SSC was asked to review the considerations of the above recommendations and examine any other boxes that might contain issues of concern. There has been substantial discussion of the above boxes with the following results. Box 36 remains the most problematic after discussion and there is a mix of issues that suggest that it should be inconclusive. The logic is that high effect always has high disturbance of the benthos coupled with some level of toxicity suggesting that the organisms are responding to something other than just physical disturbance and there is no measured chemistry to support the response. Thus, this box is one that may show responses to unmeasured chemicals. As such inconclusive or possibly impacted would be reasonable labels. However, several of the SSC members are willing to leave it as unimpacted. Overall, a label of inconclusive would be best. Note: Inconclusive for the purposes of this MLOE would be a need to collect additional data or perform additional analyses before a conclusive designation could be recommended.

Box 39 was reviewed and the SSC would like this box to remain labeled as possibly impacted.

Box 42 was reviewed and the SSC would like this box to remain labeled possibly impacted.

Box 45 was reviewed and the SSC would like this box to be labeled inconclusive.

All of the above boxes have some issues that make their labeling of question and flags should be raised and potentially additional measures determined when a station falls into these boxes.

There was some additional discussion about Boxes 3, 9, and 14 as the labels reflect a weighting toward the benthic response. Thus, the logic behind the labeling of these boxes needs to be put into the guidance document as it is not readily evident. The SSC in discussions has agreed that weighting the benthic response as more important than the toxicity response is a policy decision and it affects the labels in these three initial boxes.

3. The SSC discussed the need for additional revisions to specific portions of the MLOE framework.

- There was a misunderstanding that the MLOE framework represented a sequential approach. The science team will clarify the wording to indicate that simultaneous evaluation of each LOE is intended for the MLOE framework.

The SSC discussed the interpretation of several other specific LOE combinations shown in Table 4 of the MLOE Overview Appendix where toxicity and chemical exposure were present without benthic disturbance (e.g., combinations 51 and 52). These situations should prompt further investigation. The SSC suggested that some text be included for cases where the LOE disagree that will discuss how the conclusion was obtained and where additional analysis is needed. No additional specific cases of concern were identified during the call, but the SSC indicated that it would confer to determine if other cases should be identified.

The SSC does not have any additional specific recommendations for boxes beyond those described above; however, the following approach should be considered. First, the science team should review all boxes where a potential conflict occurs and flag them using the following process. The process should be confirmation of all data quality to insure and determine if there is in fact a disagreement among LOEs. If the data are within acceptable limits and still disagree, examination of the ancillary information should be undertaken to attempt to resolve the disagreement. This should include examination of the results of this station relative to the other stations in the water body. If a large proportion of the stations give the same type of information there may be a systematic problem with the analytical procedures in which case the whole study may have to be invalidated. If the problem is just with a single station then the station could be dropped from the list and the water body assessment completed without that station. An additional option could be re-sampling the station and its nearest neighbors for confirmation of results. The importance of the station in the overall water body decision would be a key factor in deciding the best option.

- Brock Bernstein stated that the Advisory Committee recommends the inclusion of additional guidance for implementation and interpretation of the MLOE approach. The Advisory Committee is concerned that there may be inconsistent implementation without additional guidance.
- The SSC pointed out that the toxicity results have very little influence on the outcome of the severity of effect classification shown in Table 1 of the Appendix. The science team agreed, it was the intent of this portion of the assessment to give the benthos greater weight as was suggested previously by the SSC. The SSC restated their support for the greater weighting of the benthos.

Steve Weisberg summarized the MLOE strategy for cases where one or more LOE are missing. The SSC agreed with the statement that no assessment is possible when data for only one LOE are available. The science team proposed two different strategies for cases when one LOE was missing due 1) a lack of data as opposed to 2) the case where benthic data are available but there is no approved tool for interpretation.

1. The proposal to assume the missing LOE was in the moderate category when the data were unavailable was discussed. The SSC was concerned that there was little scientific

justification for the moderate assumption and expressed concern that an assessment would be made without chemistry data. Even though the toxicity data are a component of assessing chemical exposure in the overall MLOE framework, the lack of sediment chemistry altogether was identified as a significant obstacle to data interpretation since direct measures of both likely exposure and effect are needed. The SSC stated that collection of all three LOE should be required and there should not be an option for not collecting all of the data. The science team reiterated that the proposed program would require collection of all three LOE; the missing LOE strategy would be used only in rare cases where data are lost/invalidated after collection. Several alternatives were suggested to deal with this situation:

- Use the proposed approach (moderate assumption), but restrict its use to a small fraction of the samples in the waterbody.
 - Call the data for the station inconclusive and do not use for assessment
 - Use data from adjacent stations to estimate the value of the missing LOE. No agreement on the preferred alternative was reached. The SSC decided to consider this matter further and consult with other SSC members not present during the call to see if a consensus recommendation can be provided.
 - i. In the case of a station with missing data, the SSC does not recommend using the moderate assumption as it cannot be defended scientifically. If the occurrence of missing data is a small percentage (say 10% or less) then the data from the nearest neighbor or an average between the two or three nearest neighbors could be used as a substitute for the missing data. The impact of the station on the water body assessment should be evaluated by leaving it out and using the substituted data. If the overall water body assessment does not change then either leaving out the station or using the average would be appropriate. However, if using the station with the average data creates a major change in the water body assessment, then re-sampling for the missing data should be strongly considered.
2. The science team's proposed framework for assessing a station in the absence of a tool to determine benthic community disturbance was also discussed. The SSC recommended that interpretation of the benthos using expert opinion or alternative tools is preferable to the use of the 2 LOE assessment framework described in Table 5 of the background document. The use of multiple experts to determine benthic community status, as was used to validate the benthic indicators, or use of regional reference sites were suggested by the SSC as options. Chris Beegan expressed concern regarding the feasibility of incorporating these approaches into the policy, and indicated he would investigate the matter further. However, a station classification scheme something like what was used initially to scale the magnitude of benthic impairment for the offshore California BRI may prove useful when good quality benthic data are acquired, but no index is yet available for that habitat type (Smith et al., 2001, Ecological Application 11, 4) which would resolve incorporating an approach into policy.

Public Comments

Members of the Advisory Committee provided comments about the MLOE framework and discussion.

- Support was expressed for the SSC's recommendations to avoid use of assumptions and partial LOE assessment frameworks when missing LOE are encountered.
- Concern was expressed regarding leaving some assessment decisions up to Regional Board discretion; the lack of resources and background may produce inconsistent decisions.
- A summary of the missing LOE strategies proposed during the call was requested and provided. Peter Landrum stated that the SSC has not yet reached consensus on whether to recommend a specific strategy.
- Concern was expressed regarding the use of multiple levels of conservative assumptions in the SQO assessment framework that may result in biased conclusions. Use of such assumptions in rare cases is acceptable, however.

Closing Comments

- The SSC will continue its discussions during the next week in an effort to get input from missing members and provide consensus recommendations on several issues.
- Steve Bay reminded the group that the next call is scheduled for Friday June 23 (8:00-10:00) to discuss the chemical indicator recommendations.