

Biological Objectives Stakeholder Advisory Group

Meeting Summary

June 5, 2013

Note: The list of attendees follows the meeting minutes. Additional materials from the meeting (agenda, presentations) have been posted on the project website (http://www.waterboards.ca.gov/plans_policies/biological_objective.shtml).

Another note: The summary captures the major issues presented and discussed during the meeting, though this is not intended either as formal minutes or as an authoritative or exhaustive record of all comments made. Rather the summary is intended to provide participants and other interested parties with a general description of topics addressed and different perspectives on those topics.

Where it contributes to the readability of the summary, discussion of the same issue that occurred at more than one place during the meeting is summarized together. Items on which the Group expressed general agreement are indicated **in bold**, although it is important to emphasize that the Group did not vote on these items and achieving consensus is not a goal of the Group. Specific commitments by State Board staff, SCCWRP, the facilitator, or Group members are also indicated **in bold**.

Meeting objectives

The objectives of the meeting were to:

- Provide feedback and comments on three key technical documents
- Discuss the draft regulatory framework and identify next steps

Notes on the discussion are organized according to the major topics addressed.

Additional written comments on the technical reports, including suggestions for more specific guidance, are welcome but must be submitted to Karen Larsen (State Water Board) or Ken Schiff (SCCWRP) within two weeks. Project staff will not respond to individual comments because this is an early opportunity to provide feedback and is not the formal public comment period, which will occur later in the rule making process. Attendees were encouraged to highlight areas where additional explanation could make complex issues more understandable.

In addition to the written technical documents distributed for review, the project team plans to prepare more user friendly web-based materials along with automated scoring tools that will allow users to more readily apply the scoring methods. However, these have not yet been fully funded and there is no timeline for their completion.

Reference condition document feedback

Pete Ode of the California Department of Fish and Wildlife managed the discussion which included the following issues:

- Sites that had burned very recently (within the past three years) were excluded from the reference dataset because this extreme pulse disturbance masked the invertebrate community's response to other habitat variables. While this does remove a source of natural variability from the reference

dataset, this was done in order to preserve the scoring tool's precision and ability to resolve responses to other, less extreme, disturbances. Sites that had burned more than two years prior to sampling are included in the reference dataset and there are other approaches for assessing short-term fire impacts. In addition, there has been discussion about excluding recently burned sites from bioassessment monitoring requirements. Decisions about this and other potential temporary exclusions are policy decisions

- Sites at the extreme ends of certain environmental gradients (e.g., conductivity) may be represented by only a few sites in the reference dataset. However, expectations / predictions for sites near the ends of gradients are based, not on the few reference sites at these more extreme conditions, but on the relationships established along the entire length of such gradients. In addition, evaluations of specific test cases, while not yet complete, suggest that the scoring tool behaves well in such situations. Further, the scoring results are not the end of the story; results, particularly ones that appear to be affected by extreme conditions (e.g., very high conductivity) should be evaluated further (e.g., with causal assessment)
- Similarly, the scoring tool performs well even in situations where there are data gaps in coverage along a gradient; such situations are being examined more closely
- No decision has yet been made on which conditions and/or areas would be excluded from the initial application of the proposed regulation. The technical documents explicitly note that the reference condition and scoring tools do not apply in all cases and the online scoring tool will include screens to exclude such situations. Such cases should be targets for collection of additional reference data
- Some participants believed that comments in the Discussion section regarding possible uses of the reference condition description (e.g., in anti-degradation assessment) were inappropriate for a technical document; others felt that such suggestions about possible applications of the science were completely appropriate and typical for a discussion section even in technical papers
- Temporal variability at reference sites is an important variable affecting the prediction of biological expectation at test sites. Pete Ode agreed and described the "space for time substitution" approach to sampling design, which was used to account for the effects of temporal variation; in addition, many reference sites have been sampled a number of times since the late 1990s and resampling will continue in the future. Future analyses will focus on characterizing temporal variability and its effect on the description of reference conditions, as, for example, in the Index Study that looks at variability in CSCI scores across the specified sampling period (index period)

Scoring tool document feedback

Pete Ode of the California Department of Fish and Wildlife managed the discussion which included the following issues:

- The fact that the observed vs. expected (O/E) component of the scoring tool does not include rare species while the multimetric index (MMI) does raised the question of whether the different pictures of the biological community provided by the two components could undermine the validity of the overall score. However, the scoring tool includes two components in order to improve its overall predictability and stability, thus bolstering the validity of the tool. Including all rare species in the O/E component has been demonstrated to lead to more noise in that component
- The current CSCI is based on the past ten years of data and is thus fixed in time. Collecting additional data to periodically update the CSCI, particularly in the face of ongoing climate change, will be a task for SWAMP and other partner programs. The ability to compare future reference conditions to the expectations of the 2000 – 2010 timeframe will be extremely valuable as time goes on
- The O/E scoring component excludes invasive species. These species may have a large and variable impact, depending on the species. Currently there is not enough data to determine the sensitivity of

the scoring tool to the presence of different kinds and amounts of invasive species. This is something that could be addressed in a causal assessment

- The fact that there are only a few reference sites in a particular condition does not undermine the applicability of the scoring tool to such conditions, e.g., at the ends of gradients. The overall reference dataset includes sites that represent the entire extent of natural gradients and the behavior of the scoring tool reflects the relationship of bugs to conditions across the entire gradient, not just to conditions at isolated subsets of the gradient
- There are no reference sites on effluent dominated streams; by definition such streams are not reference because they exceed the very low levels of anthropogenic disturbance used to define reference condition. Biology at these reference sites is used to predict what biology would be expected at disturbed streams in the absence of such disturbance
- While some effluent dominated streams may be non-perennial in the absence of effluent flows, and non-perennial streams are not included in the proposed regulation, it is a policy decision whether the proposed regulation will apply to artificially perennial streams (e.g., because of effluent flows)
- The scoring tool will apply to perennial wadeable streams; the project is discussing options for the most appropriate way to deal with the definition of perenniality
- Stakeholders concerned about a lack of reference sites for their specific environmental gradient(s) are encouraged to work with SWAMP to collect additional reference sites

Causal assessment document feedback

Ken Schiff of SCCWRP managed the discussion which included the following issues:

- One participant noted that the findings of the San Diego case study seemed inconsistent with respect to TDS and pyrethroids, with the inclusion of pyrethroids as a cause based solely on the frequent detection of pyrethroids in monitoring samples. The case study identified a small number of potential causes, including conductivity, fine sediments, and pyrethroids. However, the level of certainty differed across potential cause – high for conductivity, lower for fine sediments, and lower still for pyrethroids. It's important to also consider the level of certainty associated with each potential causal factor
- *Hyalella* living in streams can be more tolerant of some pesticides than the test organisms used in lab toxicity tests; however, the influence of this factor is buffered by the use of multiple lines of evidence in the causal assessment
- In some cases, more canopy cover degrades conditions for stream invertebrates and fish and the canopy measure used in the bioassessment physical habitat assessment may not account for this. This emphasizes the importance of iterative causal assessment that also carefully rules out factors. In addition, the SWAMP program is evaluating the suite of physical habitat measures that currently are collected under SWAMP protocols to determine which ones best predict biological condition
- As a policy issue, some causal factors are pollution (e.g., physical habitat, flow) rather than a pollutant (e.g., pesticides, excess nutrients) and may therefore be outside the Water Boards' direct control. As a technical issue, SWAMP is working on better tools to identify habitat-related causes of impact; however, the distinction between pollution and pollutant does not affect the ability to determine biological conditions or draw inferences about likely causal factors
- Especially in developed areas, impacts are likely to be caused by a combination of factors and it will be important to separate out causal factors that the Water Board has the authority to do something about vs. those that fall under other agencies' complementary authorities vs. those that are much less amenable to action
- The biggest concern raised about CADDIS from the case study participants was its difficulty in teasing out effects of multiple stressors

- While there may be a technical basis for off-ramps from the proposed regulation (e.g., if certain types of causes are identified) the causal assessment document is not the appropriate place to address this issue, which is essentially a policy issue. Whether and how to place sites into Category 4c (i.e., impairment due to pollution rather than a pollutant) of the 303(d) listing policy is the place for this discussion. This was tabled and will be picked up in a future meeting
- The technical team is examining how biology is affected by flow variation based on the recognition that flow is often an important causal factor and that natural flow variation occurs in reference conditions. Flow was not a direct focus of any of the case studies and only appeared as a potential cause in one (Salinas River) but would be considered like any other major perturbation in a causal assessment. In the Salinas River case study, the conclusion was that flow was not a likely cause of changes
- The conceptual model flow charts in the causal assessments are extremely useful tools and should be constructed as a collaborative effort with both regulators and regulated parties. This creates a common understanding of the problem; the causal assessment then becomes an exercise in filling out the boxes and arrows in the conceptual model diagrams for every potential cause. USEPA's CADDIS website has examples and templates. All of the California case study conceptual diagrams are on the EPA CADDIS web site
- There are philosophical differences about how much complexity to include in the conceptual model diagrams; the case study teams selected a moderate level
- The causal assessments are not necessarily ends in themselves and can identify needs for additional sampling and/or analysis
- The State Water Board is tabulating costs for the case studies and those estimates will be made available to participants when they are completed; some idea of the range of costs will be important for parties who may be involved in causal assessment and its follow-up activities. Each case study involved three workshops. Workshops were 1.5, 1, and 1 day long, respectively, with the technical team conducting data acquisition and data analysis work between meetings. A 9 – 12 month timeframe is not unreasonable
- Potential causes are categorized as likely, unlikely, and uncertain. It's important to recognize that each potential cause is evaluated on the basis of the weight of multiple lines of evidence. If most of the evidence clearly leans one way or the other, then the cause is categorized as likely or unlikely. If different lines of evidence conflict, then the cause is categorized as uncertain. Once a cause is classified as likely or unlikely, then additional evidence would be considered in order to confirm this finding; the case narrative should also be considered
- The causal assessment process does not involve formal hypothesis testing (as in the classic scientific method) but is based on a multiple lines of evidence weight of evidence approach

Implementation framework discussion

Karen Larsen of the State Water Board managed the discussion which focused on the draft regulatory framework distributed before the meeting and included the following issues:

- **Policy goals**
 - The second policy goal should be revised to state, "...ensure that they are restored to good *or best attainable* condition" in order to be consistent with language elsewhere in the document
 - It was suggested that the first policy goal be restated to include the principle that if any degradation is allowed it must be consistent with the anti-degradation policy; the State Water Board's policy is to both protect streams and ensure that any degradation is consistent with the anti-degradation policy
 - All of the policy goals could be achieved by Regional Water Boards on a case by case basis; however, achieving the State Board's goal of statewide consistency will require rule making

- **Policy option 1**
 - Policy option #1 is to adopt water quality objectives (WQOs) for biological condition
 - Regional Water Boards require bioassessment monitoring in permits now and there are a few examples of biological condition data being used as the basis for enforcement actions
 - It is not the State Board's intent that a new WQO or biological targets be used as a basis for reopening existing TMDLs
 - Regarding the last bullet under option 1 (i.e., the Water Board to conduct use attainability analyses or UAA), these would only be needed if the policy contained no exclusions. In contrast, the policy could be written so that any new WQO would apply only to specific locations or circumstances. The SQO Phase 1 policy was written so that the new assessment and scoring tool applied only to certain enclosed bays and estuaries. Another approach would be to conduct a categorical, rather than multiple site-specific, UAA to establish biological expectations for streams or stream reaches that would not reasonably be expected to achieve "good" condition based on reference condition
 - There is no intent at this point to apply the policy to subcategories of beneficial uses, although federal regulations allow for subcategories of beneficial uses (e.g., tiered aquatic life uses).
 - The policy will be implemented primarily by Regional Water Boards using guidance prepared by the State Water Board, except in instances where statewide general permits (e.g., construction stormwater general order) are issued by the State Water Board
 - In terms of possible exclusions, such as for highly modified streams, the State Water Board's preference is not to write off entire categories of streams but to have some consistent expectations, based perhaps on best attainable condition
 - The specific category of 303(d) listing would depend on whether, for example, an impairment is caused by pollution or a pollutant. In either case, the State Water Board's preference is for action to occur when signs of a problem are observed and not wait until a site is listed
 - It will be important to define what / when constitutes the anti-degradation baseline. Some participants suggested it is current conditions, others that it is when the relevant state or federal regulation was adopted. In either case, some participants argued that a WQO provides a much clearer basis for an anti-degradation policy than the biological targets described in policy options 2 and 3. The foundation or baseline should be as clear as possible in the policy so that it does not become something fought over in court
 - The WQO might need to be updated over time, especially as climate change effects become more evident; this issue has not yet been addressed
- **Policy options 2 and 3**
 - Policy options 2 and 3 propose biological targets that are not WQOs but instead are implementation tools for interpreting existing narrative objectives in Basin Plans
 - Option 1 involves a new narrative objective while options 2 and 3 are merely targets that help to interpret existing narrative objectives; however, there are differences across Basin Plans that would make it more difficult to achieve the goal of statewide consistency
 - The goal of options 2 and 3 is to achieve additional flexibility while avoiding some of the pitfalls that are associated with WQOs; however, it will be important to avoid the impression that targets are being used as de facto WQOs in order to avoid requirements such as the analysis required under California Water Code Section 13241
 - In options 2 and 3, biological data would be one piece of information that could be used in enforcement, but it is not likely that biology would be used as the only basis for enforcement; however, if the target is the basis for interpreting a narrative Basin Plan objective, then it could be the basis for an enforcement action
 - In the absence of statewide targets, it is not clear whether or how biological information could be used to apply the anti-degradation policy
 - State Water Board staff proposes to amend the Inland Surface Waters and Enclosed Bays and Estuaries Plan to incorporate the proposed new regulations, which, as opposed to developing

statewide policy, would automatically supersede conflicting provisions in the Regional Water Boards' Basin Plans. This avoids the need for the Regional Water Boards to amend their Basin Plans to incorporate the new statewide policy. Stakeholders commented that there is need to coordinate these proposed new provisions with those being proposed for implementing the statewide toxicity regulations

- The table at the end of the policy framework document explains the differences among the three options in terms of the listing policy. Under option 1, the new WQO is a stand-alone standard which could be applied independently of other standards for listing; under option 2, biological targets would also be assessed independently; under option 3, which would be identical to the current situation, biological information would be used in concert with other information for listing
- A fourth option would be to promulgate statewide guidance without establishing WQOs or targets. This would be similar to the Recycled Water Policy being implemented flexibly by the regions. While not binding, regions could be motivated to apply such guidance if it was tied to, for example, SWAMP funding or other incentives
- USEPA staff made a case for adopting new WQOs (option 1), while acknowledging the desire to provide flexibility in implementation. If there is no WQO, but only state-level targets, then there is no ability to use the Clean Water Act (CWA) and its tools, especially with regards to implementing and enforcing the anti-degradation policy. A WQO sets a clear floor for the anti-degradation policy. Finally, the real threats to stream health are not large, visible things like POTWs but rather the accumulation of smaller planning and development decisions that chip away at the integrity of streams and habitats. A formal WQO provides a more robust tool for planners to use in evaluating development plans and permits
 - Regional Water Boards would not engage directly in land use planning, but this would provide them, and other agencies like the CA Department of Fish & Wildlife, tools to use in CWA §401 water quality certifications and other similar processes
 - At the moment, it's primarily chemical WQOs that are used in such reviews; a biological WQO would expand the basis for evaluating projects and improve the linkage between development planning / review and water quality
 - A biological WQO could help guide development along pathways that would lessen damage to biological condition
 - This is critically important because of the progressive loss of species, particularly fish, in California's aquatic ecosystems

Next meeting and next steps

Karen Larsen recruited a small subgroup to work with her between meetings on further developing the policy options and their linkage to specific Water Board programs. The subgroup includes:

- Ruth Kolb, flood control / municipalities / stormwater (southern CA)
- Parry Klassen, agriculture
- Karen Ashby, flood control / municipalities / stormwater (northern CA)
- Joe Furnish, management agencies (forestry)
- Tess Dunham, pesticide manufacturers
- Katherine Pease, environmental protection
- Ed Struffenegger, timber harvest
- Anne Heil, POTW

The subgroup will begin working in mid-July.

A date for the next meeting has not yet been set.

Attendees

Name	Organization	Representing
<i>Staff</i>		
Brock Bernstein	Facilitator, Committee Chair	
Karen Larsen	State Water Board	
Peter Ode	CA Dept. Fish and Wildlife	
Ken Schiff	SCCWRP	
<i>Stakeholder group members</i>		
Ruth Kolb	City of San Diego	Flood / Munic / SW
Ed Struffenegger	CA Forestry Association	Forestry / Timber
Ed Cheslak (P)	Pacific Gas & Electric	Hydro / Utilities
Joe Furnish	US Forest Service	Management Agencies
David Arrieta	WSPA	Manuf. / Effluent Domin.
Theresa Dunham	Somach Simmons & Dunn	Pesticide Manufacturers
Phil Markle	LA County Sanitation Districts	POTW
David Bolland	Assoc. CA Water Agencies	Water Agencies
<i>Regulatory group members</i>		
Tom Mumley (P)	Regional Water Board Region 2	
Kevin Lunde	Regional Water Board Region 2	
Lisa McCann	Regional Water Board Region 3	
LB Nye (P)	Regional Water Board Region 4	
Alan Miller	Regional Water Board Region 6	
Doug Shibberu	Regional Water Board Region 8	
Clay Brandow	Cal Fire	
Matthew Buffleben	State Water Board, Office of Enforcement	
Shane Romsos (P)	Tahoe Regional Planning Agency	
<i>Other participants</i>		
Henry Alden	Gualalu Redwoods	
Arne Anselm (P)	Ventura County Watershed Protection	
Don Arnold (P)	Calley Water	
David Armell	DNA/WSRL	
Karen Ashby	Larry Walker Associates	
Chris Beegan (P)	State Water Board	
Tania Brenes	Michael L. Johnson LLC	
Lilian Busse (P)	San Diego Regional Water Board	
Seth Carr (P)	City of Los Angeles	
Beth Christman (P)	Truckee River Water	
Jon Clancy	San Joaquin Tributaries Association	
Stephen Clark	Pacific Ecorisk	
Joe Dillon (P)	NOAA Fisheries	
Jan Dougall	Las Virgenes Municipal Water District	
Brionna Drescher (P)	Water Boards	
Thomas Duffy (P)	County of San Diego	
Diana Engle (P)	Larry Walker Associates	
Jessica Erickson	City of San Diego	
Edward Filadelfia (P)	Riverside	
Terry Fleming	USEPA	
Tessa Fojut (P)	Water Boards	

Name	Organization	Representing
Scott Frazier	State Water Board	
Christopher Gabelich (P)	Municipal Water District LA	
Drew Gantner	Pacific Ecorisk	
David Gillett (P)	SCCWRP	
Jessica Erickson (P)	City of San Diego	
Rebecca Franklin (P)	City of San Bernardino	
Milasol Gaslan (P)	Water Board	
Dustin Harrison	CA Dept. of Fish and Wildlife	
Steve Haugen (P)	Kings River Water	
Ann Heil	LA County Sanitation Districts	
Bruce Houdesheldt (P)	Northern California Water	
Arne Hultgren	Roseburg Forest Products Co.	
Elizabeth Hurst (P)	Inland Empire Utilities Agency	
Emiko Innes (P)	LA County Dept. Public Works	
Nardy Khan (P)	Orange County Public Works	
Adam Link	CASA	
Jason Loftin	Sacramento County Regional San. Dist.	
Michael Lyons (P)	LA Regional Water Board	
Ron Manwill (P)	City of Thousand Oaks	
Shokoufe Marashi (P)	City of Los Angeles	
Toni Marshall	State Water Board	
Heather Merenda (P)	City of Santa Clarita	
Danny Merkley	CA Farm Bureau	
Joe Miyamoto (P)	East Bay Municipal Utility District	
Jamie Navarette (P)		
John Pastore (P)	S CA Alliance of POTWs	
Katherine Pease	Heal the Bay	
Michael Roth (P)	Water Board	
John Rudolph	AMEC	
Jose Setka (P)	East Bay Municipal Utility District	
Jennifer Shepardson (P)	City of San Bernardino	
Doug Shibberu	Santa Ana Regional Water Board	
Marco Sigala (P)	SWAMP	
Kim Spear (P)	City of Roseville	
Tamara Spear (P)	Sempra Utilities	
Claus Suverkropp	Larry Walker Associates	
Dave Thomas (P)	Robertson Bryan	
Jennifer Torres (P)	City of Corona	
Martice Vasquez (P)	Water Board	
Lori Webber	State Water Board	
Jo Ann Weber (P)	County of San Diego	
Debbie Webster	Central Valley Clean Water Authority	
Marsha Westropp (P)	Orange County Watersheds	
Bridget Woodcof (P)	East Bay Municipal Water District	
Dan Worth (P)	Water Boards	
Vada Yoon (P)	Flow Science	
Clayton Yoshida	LA Dept. Water and Power	

(P) indicates remote participation by phone and Webex