

# Biological Objectives Stakeholder Advisory Group

## Meeting Summary

April 6, 2012

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](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 they are not intended as an exhaustive record of all comments made. 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 a technical review and update, particularly on the assessment scoring tool, causal assessment case studies, and the regional pilot study application of the assessment method
- Provide an update on the regulatory / implementation aspects of the policy

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

### ***Observed / expected model***

(see the Technical Update presentation posted on the project website)

Pete Ode reviewed the basic observed vs. expected (O/E) modeling approach as well as recent refinements to and evaluations of the scoring tool. Questions and discussion included the following:

- The new scoring tool was developed to replace existing IBIs for several reasons, including
  - Existing IBIs lacked statewide consistency
  - There were gaps in the coverage of reference conditions and the representativeness of reference conditions (e.g., the IBI reference datasets did not overlap with several natural gradients)
  - There were concerns about existing scoring tools (i.e., the IBI) that needed to be addressed to ensure confidence in the technical basis of the policy
- The O/E model is based on species presence / absence, not abundance; the level of Standard Taxonomic Effort (STE) applied must be the same across sites being compared to avoid artifacts in the presence / absence data related only to taxonomy. The Southwest Association of Freshwater Invertebrate Taxonomists ([www.safit.org](http://www.safit.org)) works toward establishing standardized taxonomy
- Minimum taxonomic requirements will be established for the policy and implemented in permits in order to ensure a basic level of consistency and comparability; greater taxonomic resolution will be helpful in causal assessments
- The removal of sites with less than 400 organisms from the calculation of reference conditions raises concerns that test sites that are actually within the reference envelope would be classified as impaired

because similar sites have been removed from the reference population; the analysis of representativeness will address this potential source of bias

- The new O / E scoring tool raised concerns about the status of existing listings based on the current IBI tool

### ***Causal assessment***

Ken Schiff described the causal assessment case study process which involves a series of three workshops for each case study. The process emphasizes partnership and communication between regulators and permittees and is focused on identifying mechanisms that might explain the observed biological response in each case study area. Questions and discussion included the following:

- The case studies do not focus on entire watersheds but on smaller, well bounded portions of watersheds. This raised concerns that watersheds are connected by processes that include the entire watershed and it can be misleading to look only at a small portion of a watershed, e.g., some stressors may derive from elsewhere in the watershed
- While the case studies focus on condition in a smaller portion of watersheds, the causal assessments will look upstream for sources of stressors; diagnose locally but look more globally
- In terms of what constitutes success for the causal assessment, the goal is to identify the thing that directly touches the organisms in the stream
- The case studies are not yet complete; while they may not identify the smoking gun in each case, there is value in knowing which factors are not the cause of impact
- Identification of potential causes would lead to some action that could include additional investigations to reduce uncertainty and/or refine the understanding of causal mechanisms
- In terms of physical habitat, potential causal factors include riparian canopy, substrate, sediment, and woody debris; if the assessment can eliminate chemistry as a cause and focus on physical habitat, this would be an important step

### ***Pilot study***

(see the Expanded Pilot Study presentation posted on the project website)

Ken Schiff described the recent pilot program that encompassed the entire southern California region. Key questions and clarifications included the following:

- One participant noted a recent 9<sup>th</sup> Circuit Court decision (in 2011) that said that certain channels are no longer waters of the US but instead are point sources that are part of the MS4 system; this may have implications for the population of streams included in the policy
- Two standard deviations away from the center of the reference distribution was used as a cutoff for defining impairment in the pilot study as a way of selecting a threshold that has a statistical basis and is readily understandable. This method of setting a threshold was chosen only for purposes of the pilot study and a decision remains to be made about thresholds in the policy itself
- An alternative method of setting thresholds is to select ecological benchmarks (e.g., percent species loss)
- Whatever method is used to set thresholds, uncertainty must be explicitly dealt with
- The statistical / empirical approach to setting thresholds (i.e., standard deviations) may not allow for site-specific ecological functions that might be more relevant
- The use of two thresholds (slide #42) raises questions about what the consequences would be of falling in the red, green, or gray zones; the gray area between the two thresholds (slide #24)

represents uncertainty and sites scoring in this range could be required to conduct additional studies (similar to accelerated monitoring for toxicity) in order to improve confidence; this requires a different regulatory response than one based strictly on compliance with a single threshold value (e.g., exceedance of a standard)

- The location of the thresholds based on standard deviations does not vary much if they are derived regionally as opposed to statewide
- Setting thresholds based on standard deviations can affect both the error of calling a site impaired when it is not and the error of calling a site not impaired when it actually is, depending on where the thresholds are set
- Basing thresholds on a statistical property (i.e., standard deviation) of the score distribution will not allow for considering site-specific ecology that might be relevant; one way to address this is to use a biological threshold, such as percent species loss
- There will be some unavoidable uncertainty except at the extremes and this is an opportunity to think more broadly about the degree of confidence and how to define assessment results, perhaps using a range instead of a bright line – although that is what the gray area is
- The difference between the IBI results and the O / E results (slide #29) is due to the factors described above in the discussion of the O / E model

### ***Regulatory update***

Karen Larsen described progress on developing the regulatory and implementation framework for the policy. Initial implementation will focus on areas where there is an adequate definition of reference condition. Where reference sites cannot be defined (e.g., Central Valley floor), then either this phase or subsequent phases of the policy will need to establish alternative reference definitions. This does not mean that this area is being written off (existing policies will apply) but that it will be addressed as technical tools continue to develop and more experience accumulates. Questions and discussion included the following:

- The biological objectives policy will not provide much regulatory relief because permittees will still be required to show compliance based on toxicity tests or a single chemical limit; the issue of independent applicability is an important one for many permittees
- Given that the O / E and the IBI produce somewhat different results, how will previous regulatory actions (e.g., listings) based on the IBI be dealt with when the O / E shows these sites as not impaired? A look at the data suggests that these sites are just within the 0.68 (one standard deviation) threshold of reference

Karen Larsen noted that the Board agrees that there are places where reference is not a reasonable expectation but will still require a means of managing. There may be an agreement to use “best attainable” as a management benchmark although the method for determining what is reasonably attainable would be determined in a later phase of policy development. In the meantime, the antidegradation policy will be used to ensure that conditions do not worsen from present conditions. However, the method of setting the antidegradation baseline, and any uncertainty bounds around it, has not been determined. Questions and discussion included the following:

- Almost any human activity can cause degradation, meaning that a strict interpretation of the antidegradation policy might be unworkable and there should be some allowance for some degradation under some circumstances if conditions are not already impaired
- Such conditions would be included in the policy implementation plan and the guidance accompanying the policy. This could include description of the antidegradation analysis and what sorts of conditions to put in permits

- While the Water Boards cannot directly regulate development, there are regulatory mechanisms available through the hydromodification policy and through stormwater permits' requirements to limit discharge through development / redevelopment practices

In terms of the 303(d) listing policy, it currently includes a requirement that biological data used in a listing be associated with data on one or more chemical pollutants. That is, a listing cannot be based on biological data alone. The listing policy is silent on whether biological data can be used to remove a listing based on chemistry. The biological objectives policy may lead to recommendations about adjustments to the listing policy; however, the listing policy will not be amended at the same time as the biological objectives policy is adopted due to State Board resource constraints. However, the State Board recognizes that amending the listing policy will be required at some point to ensure consistency with this policy (as well as the SQO). Questions and discussion included the following:

- Pollutants can include temperature and sediment, which are the basis for listings in northern California
- It would be useful if “associated with” was interpreted with more rigor and was more than simple co-occurrence of a chemical with biology
- Even if a segment is not formally listed, bad bugs can indicate that beneficial uses are not being met

Slides 52 – 56 in the Expanded Pilot Study presentation (posted on the website) illustrate the relationship between current listings and biological assessment results. The contingency tables show the number of cases where biological status agrees / disagrees with listing status.

Ken Schiff summarized efforts to define exception classes, i.e., types of channels where the policy would not apply or would have modified expectations. It was extremely difficult to accurately categorize and locate channels on GIS because of the variety of data sources and differences in channel descriptions. This experience shows that it would be impossible to conduct this sort of effort for the entire state. This means that some other approach would be needed for the policy to create consistent exception classes based on channel type and morphology. Questions and discussion included the following:

- Would channels get an exception if they are currently perennial only because of effluent flows? Karen Larsen's first thought is that no exception would be given since permitting programs do not provide exception from chemical criteria in effluent dominated waterways; the policy will apply to streams as they are now
- However, this may create conflicts between policies, for example, where efforts to increase efficiency by reclaiming and recycling water reduce flows in effluent dominated perennial streams to the point where benthic invertebrate communities are impacted; any such conflicts would require reconsidering the applicability of the policy
- Conversely, some historically perennial streams are now non-perennial because of anthropogenic actions such as dams
- While Water Board staff agrees in principle that there are classes of streams that are so modified that it is unrealistic to expect them to achieve reference condition, how and where to define exception classes and a “best attainable” expectation is not yet clear
- The decision flowchart presented at previous meetings makes it clear that there are cases where dischargers are not responsible for impacts because they derive from sources outside dischargers' control (e.g., catastrophic events such as wild fires).
- The causal assessment is not guaranteed to provide a clear answer about sources; in that case permittees could be left in regulatory limbo with increased and ongoing monitoring and source identification requirements

- It is not clear whether the policy will make a distinction between proximate stressors (e.g., sediment from increased erosion) and ultimate stressors (e.g., landuse and increased impervious area); the regulatory implications could be very different in each case

### ***Next meeting and next steps***

The next meeting of the Stakeholder Advisory Group will be on May 24 at SCCWRP, preceding the meeting of the Regulatory Advisory Group on May 25, also at SCCWRP.

Stakeholders volunteered to work in subgroups to explore implementation related to various policy contexts.

MS4: Chris Sommers, Karen Ashby  
Wastewater permitting: Phil Markle  
Agriculture: Tess Dunham, Parry Klassen  
401 certification: None identified

Karen Larsen will send out a short template for the issues each subgroup should address.

## Attendees

Name	Organization	Representing
<i>Staff</i>		
Brock Bernstein	Facilitator, Committee Chair	
Karen Larsen	State Water Board	
Toni Marshall	State Water Board	
Peter Ode	CA Dept. Fish and Game	
Ken Schiff	SCCWRP	
<i>Stakeholder group members</i>		
Chuck Katz (P)	US Navy	Department of Defense
Susie Santilena (for K. James) (P)	Heal the Bay	Environmental Protection
Chris Sommers	CASQA	Flood / Munic / SW
Ed Struffenegger (P)	CA Forestry Association	Forestry / Timber
Kim Anthony (P)	Southern California Edison	Hydro / Utilities
Perry LeBeouf (P)	CA Dept. Water Resources	Management Agencies
Theresa Dunham	Somach Simmons & Dunn	Pesticide Manufacturers
Phil Markle	LA County Sanitation Districts	POTW
<i>Other participants</i>		
Arne Anselm (P)	Ventura County Watershed Protection	
Karen Ashby	Larry Walker Associates	
Lauren Bauer (P)		
Lee Bergstedt (P)	GEI Consultants	
Lucy Buchan (P)	EOA, Inc.	
Lilian Busse (P)	San Diego Regional Water Board	
Joe Dillon (P)	NOAA	
Rebecca Franklin (P)	City of San Bernardino Munic. Water Dist.	
Bruce Houdesheldt (P)	Northern California Water	
Abimael Leon (P)	Department of Water Resources	
Justin Meyer (P)	Sempra Utilities	
Alan Miller	Lahontan Regional Water Board	
Jennifer Shepardson (P)	City of San Bernardino Munic. Water Dist.	
Guangyu Wang (P)	Santa Monica Bay Restoration Commission	
Lori Webber	State Water Resources Control Board	
Dennis Westcott	SJRGA	
Marcus Yosutake	City of Folsom	

(P) indicates remote participation by phone and Webex