

# Biological Objectives Stakeholder Advisory Group

## Meeting Summary

January 13, 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 method of defining reference condition and on the development of scoring tools and the observed / expected model
- Obtain input on plans for the larger-scale pilot study of southern California

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

### ***Scientific Advisory Group update***

Ken Schiff reviewed the Scientific Advisory Group's (SAG) comments and recommendations. The SAG confirmed the project's overall direction and identified specific areas where additional effort is needed. At the upcoming SAG meeting in April the project team will present results of its work on the scoring tools and the larger-scale pilot study of southern California.

### ***Reference condition manuscript***

Pete Ode summarized comments on the reference condition manuscript received from the stakeholders. The majority of comments focused on a desire for more detail and explanation. While this is not appropriate for a peer-reviewed journal article, the project team will put a substantial amount of explanatory and detailed information on the project website.

In terms of the definition of agriculture used in defining stressors in the reference condition work, this includes only row crops. There is no reliable measure of grazing use or intensity.

The process of defining reference included a concerted effort to capture as many major natural gradients as possible.

## ***Review of new scoring tool development***

Pete Ode reviewed the steps in the development of the proposed scoring tool. The new scoring tool utilizes a widely used approach called the observed vs. expected (O/E) ratio. Key questions and clarifications included the following:

- The project team investigated the O/E approach for this application because the stakeholders asked for more site specificity in the scoring and assessment tools
- The inclusion of rare taxa in the description of the expected condition does not improve accuracy or precision; it mostly adds noise. There are no definitive rules for setting a cutoff point for species inclusion, but in general a 0.5 probability of occurrence is commonly used and will probably be used here
- Seasonality is dealt with by defining an ecologically stable index sampling period, which occurs in late spring-summer
- The definition of specific cluster groups from the cluster analysis necessarily includes some subjectivity; there are no hard and fast rules for this and there are pros and cons for both greater lumping and splitting. In general, about 10 – 12 cluster groups statewide worked best
- When calculating the O/E ratio for a particular site, the average reference site by definition has a score of 1.0, thus a probability of > 1.0 is permissible and not a concern
- Invasive species are not part of the scoring process, although information about invasive species can be used as part of a causal assessment

## ***Review of the Pilot Study application***

Ken Schiff summarized progress on thresholds and described the three basic approaches: 1) a consistent reference condition thresholds (e.g., IBI of 39) that must be met everywhere, although perhaps with certain types of exceptions; 2) a best attainable threshold based, for example, on the 90<sup>th</sup> percentile of observed condition at each level of anthropogenic disturbance; and 3) a hybrid that combines a reference threshold at lower levels of disturbance with a best attainable threshold at higher levels of disturbance. Key comments and questions included the following:

- The hybrid approach can be thought of as imposing a less stringent requirement on less disturbed sites because the reference threshold (e.g., an IBI of 39 in the example shown) is much lower than the 90<sup>th</sup> percentile representing the best attainable. On the other hand, other percentiles could be selected and the hybrid model can also be seen as switching from a reference to a best attainable threshold
  - The best attainable “line” does not have to be straight, it could be a curve or some other shape
- Selection of the variable(s) for the X axis of the figure shown is a challenge. Ken identified three possible methods: 1) select the stressor with the best regression relationship with observed condition; 2) create a composite index from several stressors, an approach that provides slightly greater resolution but that is more difficult to explain; and 3) use something less variable. The team has investigated a large number of stressors (e.g., % impervious, W1Hall, landscape development index, population density [although this might not work well in agricultural areas], road density), but the Regulatory and Stakeholder Advisory Groups were unable to generate broad agreement
- The X axis could be something that is relatively fixed, not subject to change, although there was no agreement about what this exactly means in practice or how it would be defined
- The SAG stressed that the choice of the X axis for the scoring method is not simply a statistical exercise to find the stressor(s) with the best regression relationship, instead this is policy decision that should be informed by statistics
- The scoring tools will be applied both statewide and regionally. If the shape of the relationships between stressor(s) and condition looks the same everywhere, then one scoring framework will be

applied statewide; however, if there are significant differences among regions, scoring could be applied regionally, in line with the policy of statewide consistency with regional flexibility

- The causal assessment is envisioned as a key part of the policy, especially because there are a number of factors (e.g., groundwater, natural stressors) that could create impacts on biological condition
  - The team is paying close attention to geology and will define conditions in which the modeling and scoring approaches are not applicable
  - Causal assessment can be expensive and stakeholders requested support and guidance from the state on how to conduct these
  - The three case studies that are beginning shortly are intended to begin developing this guidance (see Case Studies below)
- Causal assessment could be triggered as part of the 303d listing process (see Relationship to other policies below). State Water Board staff acknowledged that the policy for listing and delisting would need to be amended to incorporate the Biological Objectives policy
- Climate change is an important issue with the potential to alter the underlying relationships that reference condition and scoring tools are based on. Reference is not static and will be updated periodically as additional data become available. In addition, climate-related terms such as temperature and precipitation are in the model and have a high predictive capability, especially if the past couple of years are included in the analysis. However, it may be necessary to adjust the scoring tools over time. This is something the science team has given some thought to but has not yet developed specific solutions for

### ***Causal assessment case studies***

Ken Schiff described plans for the upcoming causal assessment case studies. There will be three case studies: 1) the Garcia River in northern California, focusing primarily on timber harvest issues; 2) Arroyo Grande Creek in central California, focusing mostly on agricultural impacts; and 3) the Santa Clara and San Diego Rivers in southern California, focusing on wastewater treatment plant discharges and urban stormwater runoff, respectively. Each case study is organized around three workshops that will follow the USEPA CADDIS approach ([www.usepa/caddis](http://www.usepa/caddis)). The first workshop in early February will establish the scope of the study and list potential causes. The second workshop in late May or early June will review the results of data analysis and the third workshop in October will review results of the final data analysis, synthesize results, and produce a final rating of potential causes.

### ***Expectations and exceptions***

Karen Larsen led a discussion of what target or threshold of biological condition sites should be required to meet and whether there should be one or more types or classes of exception to any such target. For example, there may be classes of water bodies or specific factors that would cause them to be excluded from the scoring criteria or be required to meet a lower threshold of performance. In the previous day's meeting, the Regulatory Advisory Group (RAG) agreed that there were places that would not be expected to achieve reference condition. They also agreed on the need for a means of prioritizing attention and resources to places where restoration or corrective actions would make more of a difference, e.g., at risk locations instead of highly impacted locations. This was not meant as tiers of compliance but a way to prioritize the regulatory response to "failure" to meet reference. However, neither did RAG members want to give up on the possibility of restoration even for severely impacted water bodies. Despite this general agreement, the RAG was not able to define a specific approach for achieving these goals (e.g., prioritizing response) and would probably need legal advice from Water Board legal staff.

Additional discussion focused on the following issues:

- Stakeholders supported the idea of prioritizing attention but were not sure how this would be implemented in practice in a regulatory environment

- Whether the policy should apply only to natural water bodies or also to created or modified channels such as flood control facilities and constructed agricultural drains
- While some channels are clearly completely constructed, many others fit somewhere on a gradient from completely natural to completely constructed (e.g., soft bottom with riprap sides)
- The draft policy framework includes a branch for habitat-related causes of impairment that may be addressed by other policies besides TMDLs, or other agencies besides the Water Board; habitat would include factors such as groundwater, natural sources of toxics (e.g., TDS, selenium), changes to flow (although the Water Board does have jurisdiction over flow), constructed channels
- Some factors, such as naturally occurring toxicants or wildfires, would fall into the category of not controllable and therefore not be subject to TMDLs. On the other hand, 303d listings do exist, based on sparse data, for naturally occurring selenium and the burden falls on municipalities / permittees to demonstrate this is from natural sources
- State Water Board staff were encouraged to be realistic about how the policy might be implemented in reality, for example, in terms of listings and TMDLs for factors that are not controllable
- The Central Valley could be an exception because of the lack of reference sites, but there is adequate data from that region to define the best attainable condition

Ken Schiff then led a discussion about potential exceptions in order to better target data gathering and classification for the southern California pilot study. His goal was to identify factors for which spatial data are readily available that would help to define modified channels. Factors included straightening, box and trapezoidal geometries, amount of concrete (sides, bottom, both sides and bottom). Several major city and county stormwater and flood control program stated they would make their facilities maps available. There is some difficulty involved in quantifying these factors and the PHAB channel alteration score was suggested as an alternative, although that also includes some subjective elements.

### ***Relationship to other policies***

Karen Larsen introduced a discussion of how the biological objectives policy would relate to other Water Board policies and began with a discussion of the 303(d) listing policy. While there was not time for substantive discussion, she did present a set of alternatives that defined, for example, whether the results of a causal assessment should be available before a listing can be implemented.

Stakeholders also noted that the goals of the biological objectives policy can conflict with other policies. For example, policies to conserve or recycle water can result in lower discharges to streams that can in turn affect aquatic habitat. Such effluent dominated channels will be discussed separately from more natural channels.

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

The next meeting of the Stakeholder Advisory Group will be on April 6 in Sacramento, following the meeting of the Regulatory Advisory Group on April 5. The next meeting of the Scientific Advisory Group will be sometime in mid-April.

## 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
Ruth Kolb	City of San Diego	Flood / Munic / SW
Ed Struffenegger (P)	CA Forestry Association	Forestry / Timber
Kim Anthony (P)	Southern California Edison	Hydro / Utilities
Jeremy Laurin (for E. Cheslak (P)	Pacific Gas and Electric	Hydro / Utilities
Perry LeBeouf (P)	CA Dept. Water Resources	Management Agencies
Joseph Furnish (P)	US Forest Service	Management Agencies
Theresa Dunham	Somach Simmons & Dunn	Pesticide Manufacturers
Phil Markle	LA County Sanitation Districts	POTW
Richard Hill (P)	Caltrans	Transportation
<i>Other participants</i>		
Arne Anselm	Ventura County Watershed Protection	
Karen Ashby	Larry Walker Associates	
Lauren Bauer (P)		
Lucy Buchan (P)	EOA, Inc.	
Lilian Busse (P)	San Diego Regional Water Board	
Amanda Carr	City of Irvine	
Jan Dougall (P)	Las Virgenes Municipal Water District	
Jessica Erickson	CASQA; City of San Diego	
Edward Filadelfia	City of Riverside	
Rebecca Franklin (P)		
David Gillett	SCCWRP	
Christine Gracco (P)	Brown and Winters	
Emiko Innes	LA County Dept. Public Works	
Al Javier	EMWD	
Scott Johnson	Aquatic Bioassay and Consulting	
Nardy Khan	Orange County Public Works	
Jeremy Laurin (P)	Pacific Gas & Electric	
Clifton Loller	Kings River Water	
Ron Manwill	City of Thousand Oaks	
Alan Miller	Lahontan Regional Water Board	
John Netherwood	Boeing	
Jeff Orrell (P)	Brown and Winters	
Robert Rodarte (P)	Orange County Public Works	
Sarah Rutherford (P)	Water Boards	
Jennifer Shepardson	City of San Bernardino Munic. Water Dist.	
Pamela Silkwood (P)		
Tom Suk (P)	Lahontan Regional Water Board	
Claus Suverkropp	Larry Walker Associates	
Jennifer Thiemann	BNSF Railway	

Name	Organization	Representing
Guangyu Wang (P)	Santa Monica Bay Restoration Commission	
Josh Westfall	LA County Sanitation Districts	
Joanna Wisniewska	County of San Diego	

(P) indicates remote participation by phone and Webex