Heal the Bay

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February 25, 2013

Karen Larsen
Director, Office of Information Management & Analysis
State Water Resources Control Board
1101 I Street, 24th Floor
Sacramento, CA 95814
Sent Via Email [commentletters@waterboards.ca.gov]

Re: Comment Letter - Board Workshop: Scientific Basis for Development of Statewide Policy for Biological Objectives

Dear Ms. Karen Larsen:

Heal the Bay has reviewed the material presented at the State Board workshop held January 23rd. We have a few questions and comments regarding the scientific basis for the Biological Objectives Policy, expressed below.

- We are supportive of strict thresholds for identifying reference sites to ensure that reference sites are truly representative of conditions minimally impacted by anthropogenic stressors.
    - However, we are not clear on what the final variables and thresholds are that were used to select reference sites. We would like clarification on this.
    - We encourage the use of appropriate variables and thresholds that represent the least amount of human influence as possible.
    - For instance, we encourage inclusion of percent impervious area because it is known to be a key driver of biological degradation in streams; further, we encourage the threshold to be extremely low for percent impervious area. Previous studies have shown negative impacts to benthic macroinvertebrates (BMI) at very low thresholds of impervious cover [1] , with documented impacts to BMI at levels even under 1% [2].

- Based on the information we have, we are supportive of the process being taken to develop the California Stream Condition Index (CSCI). However, we would like additional information on several aspects.
    - We would like clarification on the specific natural variables that are used to select the appropriate reference sites for comparison of the test site.
    - Is geology taken into account as a natural variable for the CSCI? Is it considered for the O/E score and the multi-metric index (MMI) score?

[1] Walsh, C.J., Waller, K.A., Gehling, J., & MacNally, R . 2007. Riverine invertebrate assemblages are degraded more by catchment urbanization than by riparian deforestation. *Freshwater Biology* 52: 574-587.
[2] King, R.S., Baker, M.E., Kazyak, P.F., & Weller, D.E. 2011. How novel is too novel? Stream community thresholds at exceptionally low levels of catchment urbanization. *Ecological Applications* 21: 1659-1678.

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- Are the natural variables the same for the O/E index as for the multi-metric index?
- What variables are used to determine the multi-metric score? How is the MMI calculated? How is it similar or different from an IBI score?

- We support the inclusion of natural variables, such as latitude/longitude, elevation, precipitation, temperature, and watershed area to determine the sub-set of specific reference sites relevant to the test site in question. However, if geology is included as a natural variable, there needs to be a way to differentiate natural and non-natural sources of inputs.
  - Many naturally occurring geologic inputs also have non-natural sources that could be negatively impacting benthic communities and this needs to be taken into account.

- We support that the O/E tool does not count invasive species in the observed or the expected species score calculation.
  - Are invasive species considered in the multi-metric index tool?
  - We encourage the development of a tool that not only ignores the presence of invasive species, but actually considers their presence as a negative factor.
  - Streams where the only flourishing species are invasive should not be considered meeting objectives. One of the existing flaws in the IBI score as a stand-alone metric is that invasive species can have functional roles and can add to the overall IBI score of a site.
  - We encourage development of a policy that protects and enhances native species.

- Moving forward with the policy development, we believe it would be helpful to gain input from the scientific panel on the setting of thresholds, existing thresholds, and their success.
  - Is there any scientific literature to guide the setting of thresholds, particularly in terms of species loss? Are there any studies showing that a specific amount of species loss causes an ecosystem to fail?
  - We'd like a review of existing biological objectives detailing how thresholds were set (e.g. statistical vs. biological).
  - We would also like to know if existing thresholds used elsewhere have been evaluated for performance.

- Streams should not be excluded from evaluation with the CSCI and ultimately, the policy, due to "unique" conditions. For instance, streams with high conductivity should not be excluded or treated differently.

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- We encourage the State Board not to exclude streams from evaluation with the CSCI due to high conductivity. We strongly believe that all streams should be held to as high standards as possible.
- Heal the Bay has been monitoring water quality through our volunteer based Stream Team program since 1998. We monitor sites in the Malibu Creek Watershed for water quality as well as benthic macroinvertebrates. We acknowledge that Malibu Creek Watershed does have some natural sources of phosphate due to geologic conditions; however, there are also numerous non-natural sources of phosphate and other nutrients and pollutants, such as discharge from Tapia Water Reclamation Facility, urban runoff, leaky septic systems, and agricultural inputs. Despite high conductivity, we find healthy benthic macroinvertebrate communities at minimally developed sites in the Malibu Creek Watershed. We monitor two sites in Upper Las Virgenes Creek and Upper Cheeseboro Creek that have naturally high conductivity and median IBI scores of 41 and 54, respectively. While slightly lower than our other reference sites, these scores do not indicate severe impacts of the Modelo geologic formation on biological communities.
- Therefore, sites draining the the Modelo geologic formation with high conductivity should be subject to evaluation with the CSCI in the same manner as all other sites.

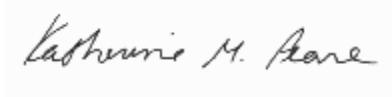
- The State Board should use a definition of perennial that is broad enough to incorporate rivers that dry up from time to time. Excess water extractions could be the cause of this condition, and this issue should not preclude a waterbody from being subject to protection under this policy. ,Thus, the entire system should be evaluated in assessing the health and perenniality of a stream.

- We have concerns regarding the use of CADDIS. How will Stressor/Causal Assessment fit into the policy?

We appreciate the opportunity to provide these comments and questions. Please contact us at (310) 451-1500 if you have any questions or would like us to elaborate on these points. Thank you.

Sincerely,





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