

Comments from the South Florida Water Management District to
U.S. Environmental Protection Agency
Science Advisory Board,
Nutrient Criteria Review Panel
February 1, 2011

Introduction:

The South Florida Water Management District (the District) thanks the U.S. Environmental Protection Agency (EPA) and the Science Advisory Board (SAB or also the Panel) for its review of EPA's documents detailing the proposed methods and approaches for developing numeric nutrient criteria (NNC) for Florida's estuaries and coastal waters, and the canals of South Florida. The SAB is to be applauded for the amount and quality of work performed since their initial meeting on December 13 and 14, 2010.

This District document presents our preliminary review of the draft report released by the SAB on January 25, 2011. With the deadline of February 1, 2011, we had a short time for extensive evaluation and will continue to provide additional comments to the SAB during your review as may be appropriate. The large majority of these comments are consistent with previous District submissions to the EPA during the 2010 rulemaking regarding their proposed criteria for South Florida canals, which were provided to the SAB. In addition, we will re-emphasize the points made during our presentation to the SAB on December 13, 2011. The District agrees with many of the points raised by the SAB and respectfully submits the following comments organized primarily in the sequence of the draft document:

2.1. Background:

- Please clarify in the text that chlorophyll *a* (chl *a*) was only used as a criterion in lakes and not inland flowing waters in 2010.

3.1.1. Conceptual Model:

- The District supports the SAB's constructive criticisms of the conceptual model between nutrients and biological responses proposed by EPA. In particular, the District concurs that biological endpoints must be better defined, connected to explanatory variables and linked to means for determination;
- We concur that EPA has not defined viable biological endpoints, particularly for the canals of South Florida, and thus cannot demonstrate any linkages between an endpoint and nutrient impacts;
- For South Florida Canals, the term 'balanced' should be specifically and operationally defined in the reality of the modified hydrological and highly managed conditions that characterize the canal systems;

- The District respectfully requests that comments on the conceptual models be maintained or expanded in the final SAB report. EPA has not connected any definition of “balance” to “natural populations of aquatic flora and fauna” in Florida waters including South Florida canals.
- Furthermore, if the goal is to maintain “balanced” populations, then EPA needs to show linkages between nutrient concentrations and an imbalance in the populations.
- The District has concerns with the SAB’s comment “In cases where data specific to a system are not sufficient, best professional judgment could be used to determine suitable target values.” We recommend the SAB reconsider this statement particularly in the context of the paragraph in Section 3.2.3 (page 12, lines 35 through 41) that states the SAB is concerned the amount of time given to this large effort will “sacrifice quality work for the sake of schedule.” If the shortness of time means that the necessary data are not sufficient to develop NNC, this may represent one example of a sacrifice in the quality of work for specific systems.
- The District concurs with the SAB’s questioning of the “appropriateness of selected models, availability of data, and level of detail required to adequately populate each model.” This is another example of where we believe our concerns with the current EPA timelines are shared by the SAB.
- We agree with the following statement and request the SAB expand on this issue in future drafts: “A statistically significant stressor-response relationship can be derived that may represent only a small portion of the variability in the data. Relying solely on this relationship would result in a tremendous amount of uncertainty would result in a tremendous amount of uncertainty in the final criterion.” This may be particularly important for the statistical relationships developed for chl a and specific nutrients.

3.2.1. Categories of Florida Waters:

- The SAB stated that the category of the South Florida inland flowing waters “seems to be a grab bag for waters that don’t fit anywhere else.”
- The District notes the EPA’s labeling of the canals of South Florida “inland flowing waters” is technically inaccurate. Many canals only flow during certain seasonal or meteorological flood events within the canal system on differing local and regional scales.

3.2.3. Approaches (Florida's Estuaries):

- The District concurs with the SAB's concerns for time allowed for this "large effort" and would note FDEP's Marine Technical Advisory Committee recently agreed as well at their latest meeting (January 27, 2011).
- The District also believes this statement is equally applicable to all waters being reviewed by the SAB, especially the South Florida Canals section.

3.4.1. Rationale for Criteria (South Florida Inland Flowing Waters)

- The District finds the SAB's conclusion on nutrient criteria in canals scientifically sound and important as stated: "However, the Panel is not convinced from the material provided that nutrient criteria are appropriate for these uniquely artificial and highly managed ecosystems."
- We concur with the SAB's concern over how one would determine reference conditions for these systems whose primary purpose is water quantity management.
- Using SFWMD (2010) as a reference, the SAB suggests an alternative approach to nutrients in canals; to view them as conveyances rather than protected ecosystems in and of themselves. We appreciate the SAB taking the time to thoroughly review our document and also would appreciate SAB expanding on this artificial conveyance issue in future drafts.
- The SAB indicates that the Class III classification requires a protection level for nutrients. The District encourages the SAB to focus not on the classification but instead investigate whether adequate scientific information exists to determine what are the appropriate ecological endpoints that require protection in artificial conveyance systems.

3.4.2. Delineation and Data Sources:

- The District concurs that this region needs to be subdivided and has previously made these comments to EPA. For example, a prominent feature influencing canals along the Lower East Coast (primarily Broward and Miami-Dade Counties) is the Biscayne Aquifer.
- The District is uncertain at this time of the applicability of the "buffer zone" to canal networks that are highly managed. The origin of instream canal waters is not consistent with river and stream systems; the same canal waterbody may be upstream or downstream depending on local and regional hydrological conditions. This is primarily due to the very flat topography of South Florida and the need to move water in different directions at various times of year.

- Overland sheet flow can represent a very small percentage of the inflow to canals due, in part, to berms that line portions of their shorelines. Most inputs are through pipes, groundwater or other canals.

3.4.3. Assessment Endpoints:

- The District concurs with the SAB stating the difficulty in defining endpoints and reference conditions to these systems and then transferring findings from any conditions identified to other parts of the water management system.
- The FDEP freshwater NNC Technical Advisory Committee (TAC) also had difficulty in defining biological endpoints for canals and NNC methodologies were not developed for the South Florida Canals through the TAC process.
- The use of macroinvertebrate communities has been preliminary described for this region (please see SFWMD, 2010 and DeBusk, 2010). The SAB may want to consider, however, based on their knowledge of stream and river ecology, how difficult and lengthy data collection and evaluation would be to develop an assessment tool analogous to a Stream Condition Index for these systems. Their known physical limitations and variability would make any applicable index extremely difficult to develop and defend in a regulatory context.
- The SAB's concerns on the use of chl *a* as an index of some protective value is shared by the District as the ecological endpoint has not been defined.
- Water management practices for flood control and water supply (for human and natural system uses) combined with possible light limited conditions in these colored waters make it difficult for chl *a* to be a meaningful index of health in canal environments.
- The District has concerns with the SAB language that states: "However, given the limited options available to EPA, and the reality that nutrient criteria are required for these inland flowing waters, the Panel believes that EPA has taken a reasonable approach."
 - This language appears inconsistent with the significant challenges for NNC development for canals listed by the SAB in the South Florida Canal section of the report;
 - This language also appears inconsistent with the SAB's concerns with amount of time given towards this effort as stated on page 12;
 - While the Clean Water Act requires that nutrient criteria be promulgated for South Florida Canals, there is no requirement outside of the consent decree entered into by EPA that the criteria promulgated be numeric. Should the SAB find that, pursuant to the comment on page 21 [23-28], current scientific information does not support the establishment of

instream protection values, EPA would retain other criteria options to consider;

- We respectfully request the SAB reexamine this sentence and overall paragraph based on the above comments.
- Of the additional endpoints discussed by the SAB:
 - Dissolved Oxygen (DO): We concur that additional studies would need to be completed for this endpoint to be considered. The significance of the many factors influencing DO (e.g., groundwater) would be an important component of any future work. Finally, many of the same concerns raised with the current DO criterion for marine systems exist for canals.
 - Algal community structure and primary productivity: The same concerns raised above with chl *a* as an assessment endpoint general apply to these two categories;
 - Benthic algal community structure: Please note many of the references cited here deal with periphyton in America's Everglades. We are not aware of any studies linking the importance of canal periphyton communities in a similar fashion. We are unclear, at this time, of a similar dynamic being observed in canals as seen in the Everglades wetland system.