

NC Nutrient Criteria Development Plan – Criteria Implementation Committee  
10/17/2018

*Attendees*

**CIC members in attendance:**

Andy McDaniel  
Anne Coan  
John Fear  
Douglas Durbin  
T.J. Lynch

Douglas Wakeman  
Bill Kreutzberger  
Keith Larrick (Anne's alternate)

**CIC members online:**

Carla Seiwert

**SAC meeting facilitator:**

Andy Sachs

**NCDEQ DWR staff in attendance:**

Brian Wrenn  
Mike Templeton  
Connie Brower  
Pam Behm  
Christopher Ventaloro

Jeff Manning  
Nora Deamer  
Tammy Hill

**Meeting materials** can be found on the Division of Water Resources Nutrient Criteria Development Plan Scientific Advisory Council webpage. Click [here](#) for a direct link.

*Meeting notes*

\*\*\*All questions, comments and answers are paraphrased\*\*\*

This meeting was held as a conference call/WebEx meeting

1. **Convene** (Andy Sachs)
  - a. CIC members, DWR staff and audience attendees provide names and affiliations.
  - b. Desired outcomes:
    - i. Shared understanding of SAC's status for High Rock Lake.
    - ii. Shared understanding of the SAC's responses to CIC's comments on the pH proposals.
    - iii. Resolution on the preferred pH proposal option.
2. **SAC update** (Brian Wrenn)
  - a. Updated on cyanotoxins in High Rock Lake (HRL)

NC Nutrient Criteria Development Plan – Criteria Implementation Committee  
10/17/2018

- i. EPA has recently updated the *Draft Human Health Recreational Ambient Water Quality Criteria and/or Swimming Advisories for Microcystins and Cylindrospermopsin*. The updated version has not been published. EPA does not have an estimate of when this document will be finalized.
- b. Total vs. dissolved cyanotoxins
  - i. Astrid Schnetzer (SAC member) has re-analyzed the SPATTS samples taken in HRL as part of the 2016 summer study to account for total cyanotoxins.
  - ii. There was only a small difference between the total toxin results and the dissolved toxin results.
  - iii. The samples were originally analyzed for dissolved toxins. This suggests that we did not miss anything during the sampling event.
- c. Aggregation of data in HRL
  - i. Clifton Bell (SAC member) gave a presentation to provide his rationale for why chlorophyll-a criteria for HRL should incorporate a spatial component to account for differences in the hydrogeography of the lake. He proposes splitting the lake into three sections: lacustrine, riverine and transitional.
- d. Arithmetic average vs. geometric mean
  - i. Nora Deamer (DWR staff) provided an overview of the differences between these methods for averaging data.
  - ii. Benefits and challenges of each type of averaging method were discussed.
- e. Fishery update
  - i. Stephen Parker (NC State University graduate student) gave a presentation on work he has been doing in various reservoirs throughout the state including HRL.
  - ii. Study has been focused on striped bass management but catch rate and catch effort information was obtained for many species.
  - iii. Species inventories were also considered.
  - iv. Based on the study, HRL appears to be a system that has low diversity and a high maximum effort for the taking of fish when compared to other NC reservoirs.
  - v. The most commonly caught species in HRL was the striped bass. Some of the other more common species were invasive species such as the yellow carp.
  - vi. Comments/questions:
    - 1. Bill K.: The previous presentation by the NC Wildlife Resource Commission (WRC) indicated that HRL is not a good habitat for striped bass.
    - 2. Andy M.: Do striped bass reproduce in HRL?
    - 3. Brian W.: They do not reproduce in HRL.
    - 4. Andy M.: If the striped are introduced by the WRC and are not expected to establish reproducing populations what does that mean for the role of striped bass in addressing best uses in HRL?
    - 5. Brian W.: The target species of the study was striped bass. The take away from the presentation was that the species richness of HRL is the lowest of all the reservoirs looked at. Previously comments have been made that HRL

## NC Nutrient Criteria Development Plan – Criteria Implementation Committee 10/17/2018

is an excellent fishery and that it is world class bass fishery. Based on this information that may not actually be true.

- f. HRL chlorophyll-a criteria decision tree
    - i. SAC began to work through the decision tree that they developed to assist in the development of chlorophyll-a criteria for HRL. They quickly ran into some problems with the structure of the decision tree and some of the assumptions made. Some SAC members feel that criteria magnitude needs to be considered prior to discussion duration and frequency while other SAC members feel the opposite is true. The SAC may need to go back and restructure the decision tree. Some SAC members are going to put together various magnitude, frequency and duration scenarios to investigate this further.
  - g. HRL criteria development schedule
    - i. DWR staff broached the subject of establishing a set schedule for the establishment of criteria for HRL.
    - ii. The current process has been ongoing for about three years with little progress made. A defined schedule may provide structure to help the SAC focus their efforts.
  - h. Multiple-day SAC meeting
    - i. Some SAC members felt that they would be able to make more progress with chlorophyll-a criteria if they were to hold a multiple-day meeting.
    - ii. As of now we are looking into holding a two-day SAC meeting on December 3 & December 4, 2018 at the NC Department of Health and Human Services Laboratory in Raleigh.
3. **Discussion of the SAC response to the CIC pH proposal questions** (Andy Sachs)
- a. In June of 2018 the CIC provided the SAC questions concerning the two pH proposals the SAC requested input on.
    - i. Clifton Bell, Martin Lebo and Bill Hall provided answers to the questions which have been distributed to the CIC members.
  - b. Andy S.: Do the CIC members feel that they received the information that they need to make a recommendation on pH criteria based on implementation?
    - i. Doug D.: Feel that this has become more about criteria assessment rather than the setting of criteria. When does the CIC decide that implementation will not make a difference? If the SAC is not going to make changes to the existing pH standard that might improve the water quality of the lake it makes sense to choose the proposal that has the least impact to the regulated community.
    - ii. Anne C.: The SAC is not just trying to develop criteria they are also trying to establish assessment and sampling requirements.
    - iii. Bill K.: The SAC is looking at things that fall on the implementation side. It is ok, but it is really the job of the CIC to look at this to be able to consider the effects on the regulated community. Regarding the pH proposals: pH is an indirect criterion in the lake. Chlorophyll-a has a major influence. The SAC proposals soften the existing pH

NC Nutrient Criteria Development Plan – Criteria Implementation Committee  
10/17/2018

- standard. Want to make sure that any chlorophyll-a and pH criteria that the SAC comes up with are complimentary. I like option #2.
- iv. Pam B.: Looking at the incoming data from the 2016 sampling efforts and it appears that there is one lake immediately downstream of HRL that is impaired for pH.
  - v. John F.: Like option #2. If integrated water column data were available, I would prefer that.
  - vi. T.J. L.: prefer option #2. From a permitted discharge perspective there would be little impact.
  - vii. Andy M.: The model for HRL does not assess pH so it would be difficult to model the effects of changing the pH criteria. Chlorophyll-a would be the driver for controlling nutrients.
  - viii. Anne C.: Pam just mentioned that there was a lake that was being impaired for pH and not for chlorophyll-a.
  - ix. Andy M.: That lake is receiving water from HRL.
  - x. Carla S.: Leaning toward maintain the current pH standard based on the SAC minority report. If that is not an option I would lean toward option #2.
  - xi. Doug W.: Prefer to keep the current pH standard. Slight preference for option #2, but don't see compelling evidence to change the current standard.
  - xii. Andy M.: Option #2 is a little better. I have no sense as to which might be more fiscally challenging. Option #1 leaves the door open to NPDES facilities tracking 1-hour median. That would be more work/expense.
  - xiii. Brian W.: The pH for NPDES permits is technology based. Changes to the lake pH would not change that. It would stay at a pH of 6-9 S.U. for permitting.
  - xiv. Anne C.: Leaning towards option #2. The 6-9 would stay. Would the SAC recommendation change how sampling is done?
  - xv. Brian W.: SAC has not recommended to change how we sample.
  - xvi. Anne C.: That is good as it will not have a fiscal impact for the state.
  - xvii. T.J. L.: Leaning option #2. Like the vertical averaging with an instantaneous reading.
- c. Andy S.: Is no one advocating for option #1?
    - i. Carla S., Doug W. and Doug D. prefer to keep the existing standard but will support option #2 if forced to choose.
    - ii. Remaining CIC members prefer option #2
  - d. Andy S.: What else needs to be reported to the SAC?
    - i. Bill K.: Focus of regulating nutrients should be on chlorophyll-a. Option #2 provides flexibility in implementation and prevents the use of outliers for impairment. What the SAC decides to do with chlorophyll-a may change the CIC's view.
    - ii. Doug D.: To implement any new or revised criteria it needs to get into rule. Not sure how stakeholders will react to changes in pH and chlorophyll-a criteria. There may be challenges to these new criteria. What do we gain from the new criteria? Legal challenges result in costs as well.

NC Nutrient Criteria Development Plan – Criteria Implementation Committee  
10/17/2018

- iii. Anne C.: In option #2 there is recognition of the actual uses in the lake. Fish can move if the surface pH is high so long as DO doesn't go below 4 mg/L elsewhere due to the higher pH.
- e. Andy S.: What does DWR staff need from the CIC?
  - i. Brian W.: The CIC prefers option #2. Staff require a write-up of the basis for the CIC's decision to bring back to the SAC.
    - 1. Bill K. will write a draft version that includes CIC thoughts regarding chlorophyll-a criteria and nutrient management.
    - 2. Carla S.: Should also mention the importance of protecting downstream uses.
    - 3. Andy M.: I am struggling with the criteria and the verbiage for the standard. The pH proposals are not in the form of rule-making verbiage. What will the standard actually say? That will be important in considering potential fiscal impacts.
    - 4. Brian W.: The proposed standard language will be in the final SAC pH proposal write-up.
    - 5. Bill K.: Might be good for CIC members to comment on this aspect.