

NC Nutrient Criteria Development Plan – Criteria Implementation Committee
1/23/2019

Attendees

CIC members in attendance:

Andy McDaniel
Anne Coan
John Fear
Douglas Durbin

T.J. Lynch
Douglas Wakeman
Bill Kreutzberger

CIC members online:

None

CIC meeting facilitator:

Jenny Halsey

NCDEQ DWR staff in attendance:

Brian Wrenn
Connie Brower
Pam Behm
Christopher Ventaloro
Jim Hawhee

David Huffman
Nora Deamer (online)
Julie Ventaloro (online)
Linda Culpepper (online)

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** (Jenny Halsey)
 - a. CIC members, DWR staff and audience attendees provide names and affiliations.
 - b. Jenny H. introduces herself as the new CIC meeting facilitator.
 - c. Desired outcomes:
 - i. Shared understanding of SAC's Chlorophyll-a proposal for High Rock Lake (HRL).
 - ii. Shared understanding of the SAC's next steps.
 - iii. Shared understanding and finalization of the CIC's pH proposal comment document.
 - d. The notes from the October 2018 CIC meeting have not been completed. DWR staff will send them out soon.
2. **SAC update** (Brian Wrenn)

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- a. Updated on the two-day December SAC meeting
 - i. The SAC has made progress toward developing chlorophyll-a criteria for HRL (see presentation slides for details of the criteria).
 - ii. All components have been developed by the SAC.
 - iii. Questions remain regarding how the frequency component will be implemented. There has been some discussion of using a not to exceed more than once in three years approach.
 - iv. There has been no talk of aggregating assessment units at this time.
 - v. Clifton Bell's chlorophyll-a range framework has not been incorporated in the criteria, but it is considered applicable.
 - vi. The SAC has not fleshed out the narrative component yet.
 - vii. Martin Lebo (SAC member) proposed the criteria. The proposal is based on a distribution analysis of existing HRL chlorophyll-a data. Monte Carlo analysis was used to perform a probability analysis using the geometric mean for sampling station Y152C (the station that experiences the highest chlorophyll-a in HRL) vs. the long-term chlorophyll-a concentration average. From this it was determined that protecting the lake at the 90th percentile is equivalent to about 115% of the long-term average. A magnitude of 35 ug/L was chosen based on best professional judgement as it falls within the chlorophyll-a range deemed by the SAC to be protective of the uses in HRL.
 - viii. Comments/questions:
 1. Bill K.: Interesting as this contrast how other states have approached this. EPA has cited examples of other states that apply chlorophyll-a criteria only near the dam. This approach develops criteria for the worst case and shows how it is protective for the whole lake. It also addresses the issue of needing to combine stations and accommodates use of individual assessment units.
3. **Next steps and schedule for SAC** (Brian Wrenn)
 - a. The SAC came up with a document template that will be used to craft the official chlorophyll-a criteria proposal. Each section of the document is assigned a chapter leader with multiple SAC members making contributes. All SAC members are taking part in the development of this proposal. Plan is to have the draft proposal document ready by the April 2019 SAC meeting.
 - b. Some discussion was had regarding the development of N & P criteria. The SAC may look at using a bioconfirmation approach as opposed to establishing concentrations for N & P.
 - c. The SAC will also work to flesh out the narrative standards and may revisit some of the earlier response variables to examine whether changes are needed in light of the new chlorophyll-a criteria.
 - d. Comments/questions:
 - i. John F.: Will there be a minority report for chlorophyll-a?

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1. Brian W.: We don't anticipate a minority report. All SAC members voted for the proposed chlorophyll-a criteria with the exception of Deanna Osmond who was not able to attend the December meetings. Based on previous conversations with we don't anticipate her having an issue with the new criteria.
- ii. Andy M.: Did any of the SAC members feel that the criteria were inappropriate or feel the need for N & P criteria to be established
 1. Brian W.: All of the SAC members voted in favor of the chlorophyll-a criteria. Some members feel that N & P need to be addressed in some way. Other members feel that the chlorophyll-a criteria provide adequate nutrient control. The SAC will discuss this further.
- iii. Doug D.: Does this mean that the whole of HRL can be at 35 ug/L?
 1. Brian W.: The potential is there for that to happen, but due to the characteristic of the lake it is not expected to be an issue.
- iv. Doug D.: Being that the criteria is based on the a single controlling station (Y152C), does that allow for a simplification of the implementation of the criteria? What is the controlling station changes?
 1. Brian W.: Because we sample HRL for multiple parameters that apply throughout the lake our sampling efforts will not change.
 2. Pam B.: (Regarding potential for controlling station to change) About 70% of the nutrient loading is captured at station Y152C. We are not aware of anything that would change any time soon.
- v. Doug D.: Has anyone looked at the numbers to compare the new criteria to the existing standard? This information will be useful for us to understand how implementation might change.
 1. Brian W.: Looked at the 2016 data. The geometric mean was ~57 ug/L for chlorophyll-a. The maximum value was ~94 ug/L and the minimum value was ~35 ug/L. While some reduction will need to occur in HRL to meet the new criteria, there will be less reduction overall because the geomean smooths out the higher chlorophyll-a values.
 2. Bill K.: If you take the geomean of the May-September data, station Y 152C is ~55 ug/L. Keep in mind that this is based on monitoring once per month usually in good weather conditions. The HRL model takes into consideration all types of weather conditions, and provides a geomean of about 45 ug/L. The model is good at predicting peaks, but it is a little different with predicting geomeans as it provides results four time each day.
- vi. Andy M.: Do you anticipate the draft chlorophyll-a proposal to contain multiple options for criteria similar to the pH proposal?
 1. Brian W.: Don't expect there to be multiple proposals for chlorophyll-a. Not sure how the N & P criteria discussion will play out.

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- vii. Doug D.: Has any modeling been done for N & P in HRL?
 - 1. Brian W.: Pam B.'s group (DWR Modelling and Assessment Branch) is looking into this.
 - 2. Anne C.: Should this be done before the SAC moves on with discussing N & P?
 - 3. Pam B.: The standards are supposed to be set to be protective of the uses based on the best available scientific information. We don't want to unintentionally bias the SAC in their decision making.
 - 4. Bill K.: Those are implementation issues anyway.
- viii. Andy M.: For the CIC schedule going forward, it is important that we state any assumptions we are making as part of our analysis of costs. This will be more critical for chlorophyll-a, but it is something we should keep in mind.
- e. **Discussion on CIC's pH proposal comment document** (Bill Kreutzberger)
 - i. The purpose of the document is to record the basis for the CIC's recommendations.
 - ii. Consulted with Andy M. and Doug D. prior to sending the draft out to the remainder of the CIC members. All CIC member comments appear in the draft.
 - iii. Structure:
 - 1. Purpose – Describes the two pH proposal options provided by the SAC as well as the current pH standard.
 - 2. Clarification request – DWR provided this information based on CIC member request.
 - 3. Evaluation options – Tried not to get into the science behind the pH proposals. Did comment on the minority report submitted by the SAC.
 - 4. Thoughts:
 - The proposals are based on looking at one point in time just below the water surface. This is a worst-case scenario for considering pH.
 - The CIC draft document will propose that the SAC go with pH option #2.
 - Comments from CIC members included concerns regarding public perception and whether we should include statements regarding application of the pH criteria to other NC lakes.
 - iv. Comments/questions:
 - 1. Brian W.: Regarding the comment in the draft document that pH may not be driven by chlorophyll-a, it is hard to imagine a scenario in HRL where high pH is not driven by algal production.
 - Anne C.: Weren't there observances of high pH downstream of HRL?
 - Pam B.: Yes, on the 2016 303(d) list. Need to look at the results for 2018 to clarify as more impairments for chla and high pH have

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been added. The Yadkin reservoirs were monitored in 2016 and that led to more systems being added to the 303(d) list, more than we've ever seen in the Yadkin.

2. Andy M.: Does DWR have questions or concern about the CIC document? Does the document meet DWR's expectations?
 - Brian W.: Staff does not have concerns. Structure of the document is good.
3. Anne C.: Most of the comments were wordsmithing. Regarding the concerns over public perception, not sure if this is an evaluation method or a discussion.
 - Bill K.: regarding likelihood for litigation, this is hard to discuss & predict. For public perceptions one option is to make the number less stringent.
 - Anne C.: We are making a qualitative assessment of what public perception is.
 - Doug D.: The threat of litigation for pH is low. Overall the pattern of litigation in NC is low. There is no smoking gun for pH in HRL as there is no obvious source. It is mostly due to natural conditions though the public may still be concerned. I see chlorophyll-a in the same category. N & P are different as there are direct discharges that can be pointed to. The likelihood of litigation is based on price to comply vs. the price to litigate.
 - J. T. L.: Does this need to be included in the document at all?
 - Bill K.: Could remove this.
 - J. T. L.: I see this group as the public. We could record whether there was dissention within our group?
 - Jenny H.: Do CIC members feel ok with this?
 - CIC members state that they are ok with this.
4. Bill K.: The other question is whether this pH criteria will apply to other water bodies in NC? If it does, would our justification for HRL apply to other water bodies?
 - Brian W.: The NCDP is set up to focus first on pilot projects for different water body types and then focus on expanding criteria development statewide. This CIC paper is just looking at the pH proposals options offered by the SAC to help guide their decision making.
 - Doug D.: It is important for the CIC to consider how this might apply to other water bodies. It is also a good thing for the SAC to discuss. What are the positives and negatives of applying it to other waters?

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- Bill K.: We can present it as a recommendation to the SAC to consider application to other waters.
 - Brian W.: That will happen regardless. This is not the final pH proposal by the SAC so it might not be the appropriate time to make that recommendation.
 - J. T. L.: I think it will be very dependent on the parameter as to whether criteria can apply to other waters.
 - Anne C.: The request by the SAC was specifically centered on HRL.
 - Andy M.: There is also a distinction between considering the assessment method vs. the criteria when discussing possibility of applying to other waters. What are DWR's thoughts on this? Will you look to see if there are consistent criteria to apply to other water bodies or consistent evaluations to use in other waters?
 - i. Pam B.: Part of the NCDP is that there will be discussions focused on these questions.
 - Andy M.: Have we reached a decision on whether to include a recommendation that the SAC consider the application of the pH criteria to other lakes?
 - Bill K.: I will soften the language to read something like "Due to the conservative nature of the criteria the SAC should consider applying it to other lakes."
 - Anne C.: Should soften the language of that whole section. Something like "The CIC also discussed whether the SAC should consider applying the pH criteria to other lakes."
- f. **Closing** (Jenny Halsey, Brian Wrenn)
- i. The next CIC meeting date has not been set yet. We can wait and see what develops from the next SAC meeting or I can send out a Doodle poll for you to choose dates.
 - 1. CIC members request Brian W. sends out a poll with possible CIC meeting dates. Some members state that they prefer the conference call format if a full meeting is not necessary.
 - ii. Bill K. will try and get the next draft of the CIC pH proposal response letter out within the next week.