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Mr. Gregg Comstock  
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Project No. 143039

Subject: Feedback on October WQSAC Meeting Materials

Dear Mr. Comstock:

On behalf of the Great Bay Municipal Coalition (GBMC), I am writing to follow up on total phosphorus (TP) permitting concepts that were presented at the October 11, 2018 Water Quality Standards Advisory Committee (WQSAC). These comments have two major parts. The first part provides technical feedback on DES' preliminary recommendations for critical stream flow and phosphorus targets, as presented at the October 2018 WQSAC meeting. The second part of the letter recommends specific elements to include in a flexible phosphorus permitting framework for New Hampshire. We would like to seek consensus on these elements, leading to the development of effective guidance for phosphorus permitting.

**A. Feedback on Materials Presented at October 2018 WQSAC Meeting**

During the October 2018 WQSAC meeting, DES described a concept of using the August median streamflow and 30 ug/L total phosphorus target for reasonable potential analysis and NPDES permitting. The method would use a higher streamflow and lower TP target than the existing EPA method. Otherwise, the basic approach would be the same as the existing EPA method. The increased flow and decreased concentration would offset each other to varying degrees depending on location. Anti-backsliding was cited as a reason that there would be no increased load allocation to existing TP-permitted sources for which the proposed method would otherwise result in higher allocations. Conversely, some facilities would receive significantly lower allocations under the proposed method than under the existing EPA method. The DES presentation did not address any major new permitting elements or consideration of water-body variability in response to nutrient inputs.

The Coalition is strongly opposed to an approach that would simply increase the critical flow, decrease the TP target, and achieve no meaningful improvement in New Hampshire's TP permitting approach. We would consider this a minimal-effort approach to replace the 7Q10, and contrary to the intent of NH RSA 485-A:8, II to provide a more scientifically-defensible method. If this approach was adopted, New Hampshire would have missed an opportunity to improve the technical basis and water body-specific flexibility of our methods. The following comments represent feedback on specific elements of the October 2018 WQSAC meeting materials.

1. Recommendation of summer median flow as critical streamflow. In and of itself, DES' recommendation of the August median streamflow represents a step in the right direction for replacing the 7Q10 streamflow. However, we retain our recommendation for the summer median streamflow, which is typically similar in magnitude (but somewhat higher than) the August median streamflow, and has been approved by EPA for nutrient permitting/allocations elsewhere. DES partially justified the use of the August median flow by demonstrating that streamflow values are below this value ~17% of the time (i.e., ~62 days), and that "62 days is sufficient time for a river to respond to nutrients". However, river responses would not be controlled by the total number of days per year, but by the number of consecutive days that a stable streamflow persists. Moreover, a summer median is more consistent with the generalized nature of the analysis, which is not tied to specific monthly targets.

The Merrimack River materials from the October 2018 WQSAC meeting provide an example in which both the summer median flow and August median flows were shown useful predictors of when elevated chlorophyll-a would occur. Given that both are useful predictors, DES is not obligated to choose the value that would presumably result in lower allocations for the regulated community. For streams prone to nutrient impairments, permitting using the summer median streamflow would result in stringent TP controls.

2. Need for inclusion of higher TP targets. The Coalition strongly opposes the blanket use of 30 ug/L TP for reasonable potential analysis and permitting in New Hampshire. This value has little scientific basis. Slide 75 of the October 2018 WQSAC materials lists five justifications for the 30 ug/L target. *None of the five justifications represent a demonstrated cause-and-effect relation between TP concentration and use attainment.* Rather, they represent factors such as ecoregional TP values (which simply characterize the low end of a data distribution) and stringent values used by selected states, while ignoring much higher ranges of values used by other states and regions.

Although TP targets used by other New England states should obviously be examined, they should not be used exclusively. Similar algal taxa—with a similar range of phosphorus needs—inhabit temperate streams across the nation, so there is no scientific basis to exclude considerations of targets used by other states in temperate regions. There may be considerable variation in the appropriate TP target between different stream types within NH. For example, values as low as 30 ug/L might be appropriate for highland streams in relatively undeveloped areas, whereas productive coastal zone streams may be able to assimilate much higher TP concentrations (50-150 ug/L) without impairments. The latter range includes the Gold Book value and roughly corresponds to the TP target range used by many other states with temperate to cold climates.

3. Need for a flexible, science-based permitting framework. The materials presented at the WQSAC meeting gave no indication that DES has considered the Coalition's "Recommendations on Streamflow and Phosphorus Targets for NPDES Permitting in New Hampshire" dated May 15, 2018. These recommendations included:

- Do not apply the phosphorus targets as an instantaneous, toxics-like targets.
- Use response variables as the primary indicators of nutrient impairment or lack thereof.
- Allow the derivation of site-specific phosphorus targets for streams that meet response-variable targets
- Permit using a streamflow that represents typical seasonal low flow conditions.
- Allow the derivation of site-specific phosphorus targets using mechanistic linkages.
- Consider how antidegradation can be used to protect high quality streams in the case of new or expanded discharges.

We repeat these recommendations and refer DES to the May 15, 2018 letter for more details. Note that our opposition to the approach presented in the October 2018 WQSAC materials is not based on the idea that there is a single TP target—the Gold Book value or otherwise—that is the “right” number to use for every stream in New Hampshire. Rather, our view is any simplistic approach that applies a single TP target and streamflow in toxics-like fashion will be scientifically lacking. There are an increasing number of precedents from other states of more scientific, flexible approaches. The recommended components of a TP permitting framework is the topic of the next section of this letter.

#### **B. Recommended Elements of a Phosphorus Permitting Framework**

The Coalition recommends that, as the next steps in the discussion, the WQSAC reach consensus on the major elements of a phosphorus permitting framework for New Hampshire. The framework should include elements such as the critical streamflow and range of TP targets, but should also describe how permitting can take into account water-body specific characteristics and conditions. After consensus on the major components is reached, a draft guidance document could be developed.

To aid this discussion, the Coalition recommends that the phosphorus permitting framework include the following elements:

- Identification of nutrient-related response variables (e.g., dissolved oxygen, chlorophyll-a, benthic macroinvertebrates) that should be the primary indicator of whether nutrient impairments do or not occur.
- Identification of a range of TP targets to be utilized.
- A description of how response variables and TP targets will be used together to determine if nutrient impairments occur.
  - If both TP and response variables exceed targets, the system should be considered potentially impaired by nutrients.
  - If response variables meet targets but TP does not, the system should be considered unimpaired.

- If response variables exceed targets but TP does not, the system should be considered impaired by factors other than nutrients.
- A mechanism for setting water body-specific TP targets to the prevailing TP concentration (within certain ranges) for water bodies with favorable response variables.
- A discussion of data requirements for the demonstration of the appropriate need of water body-specific TP targets.
- Acknowledgement that water body-specific TP targets can also be developed using predictive relationships such as water quality models, or application of existing, science-based TMDLs.
- Discussion of specific TP permitting procedures:
  - Critical streamflow
  - Selection of TP target
    - Consideration of the receiving water's current condition.
    - Consideration of future condition (e.g., at full permitting discharge)
    - Appropriateness of site-specific TP target
  - Seasonal averaging
  - Consideration of equitable nonpoint source reductions (where appropriate)
  - WLA and limit calculation procedures
- A discussion of how antidegradation policies should be applied for total phosphorus.

We refer DEQ to documents listed below as examples of guidance that include many of these recommended elements. Although no single precedent could be transferred to New Hampshire in its exact form, the ability to tailor these precedents to New Hampshire should significantly lower the effort to develop a flexible guidance document. The Coalition would be happy to assist DES and the WQSAC with that effort.

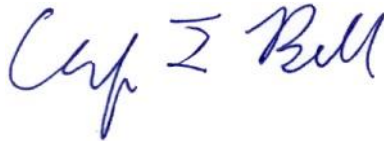
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- Ohio Nutrient Technical Advisory Group. 2015. *Stream Nutrient Assessment Procedure*. Recommendations submitted to Ohio EPA. [https://www.epa.ohio.gov/Portals/35/wqs/nutrient\\_tag/Nutrients\\_TAG\\_Recommendations\\_12-4-2015\\_G04-FinalDraft%20-%204828-0819-7931.1.pdf](https://www.epa.ohio.gov/Portals/35/wqs/nutrient_tag/Nutrients_TAG_Recommendations_12-4-2015_G04-FinalDraft%20-%204828-0819-7931.1.pdf)

- U.S. Environmental Protection Agency. 2013. *Guiding Principles on an Optional Approach for Developing and Implementing a Numeric Nutrient Criterion that Integrates Causal and Response Variables*. EPA-820-F-039. 4 p. Accessed at <https://www.epa.gov/sites/production/files/2013-09/documents/guiding-principles.pdf>

Thank you for the opportunity to submit these recommendations, The GBMC looks forward to discussing these concepts in future WQSAC meetings.

Sincerely,

**Brown and Caldwell**

A handwritten signature in blue ink that reads "Chris Z Bell". The signature is written in a cursive style with a large, stylized "C" and "B".

Technical Leader, Watersheds & TMDLs