Portland Area Nitrogen Group
Meeting Summary

Virtual Meeting No. 4 | March 3, 2022| 9:30 AM – 12 PM ET

MEETING OBJECTIVES

On March 3, 2022, the Portland Area Nitrogen Group (PANG) held its fourth meeting. The objectives of the meeting were to:

- Update the group on the process, and the transition to rule-making
- Share (near final) results of the N-STEPS technical work and modelling
- Consider how this group will move toward a recommended approach to nitrogen criteria in the Portland area.

To view meeting materials, please click [here](#).

WELCOME

David Plumb, CBI Facilitator, opened the meeting, together with Angela Brewer, Section Leader of the Marine Unit at the Bureau of Water Quality in the Maine Department of Environmental Protection (DEP). Angela also noted that Nancy Gallinaro (City of Portland) has taken a new position in Florida and has been replaced by Bill Boornazian (Operation Manager). Other new faces to the PANG meeting are Matt Hight (DEP Policy Analyst), Theresa Vander Woude (Knauss Fellow with EPA), Brian Kavanah (DEP Director of Bureau of Water Quality), and Sierra Kuun (PWD Engineer).

PRESENTATION: UPDATE ON OUR PROCESS AND THE TRANSITION TO RULE-MAKING

Angela Brewer offered an update of the PANG's process and clarified the question the group is trying to answer in this meeting and final 1.5-hour meeting scheduled for early April. Matt Hight, also from DEP, described an upcoming rule-making process that the department is undertaking state-wide, which will allow for area-specific approaches, such as the one the PANG is considering. Their presentation is available [here](#). Brian Kavanah also spoke about intent to memorialize permit application of nitrogen thresholds in rule by creating criteria, and motivation for moving rule making ahead this calendar year. Key points of discussion among PANG members included:

- Support for the DEP rule-making process
- Hydrodynamic modeling will be important when applying criteria
- Why go state-wide? *DEP – the state is already permitting significant projects with current guidance values. It's better to do a formal rule-making process than to continue existing process.*
- Will DEP do detailed work such as the PANG work in other areas? *DEP – We're open to the possibility of more area-specific efforts such as Portland.*
- How will the local approach being developed in the PANG affect state-wide criteria, particularly is it relates to classification? *DEP – We're open to suggestions from the PANG and stakeholders participating in the state-wide public process.*
- Will this affect storm-water discharges? *DEP – TBD*

PRESENTATION: N-STEPS NEAR FINAL TECHNICAL ANALYSIS

Mike Paul, Tetra Tech N-STEPS contractor, walked the group through his [near final technical analysis](#) of data to support decision-making on nitrogen criteria approached for the Portland area of Casco Bay.

Below are member questions and comments that followed Dr. Paul's presentation. PANG member questions or comments are **bolded**, answers are attributed and *italicized*, and any further comments or questions made by members are in regular text.

- **Matt Liebman: This is an impressive amount of analysis. A "weight of evidence" approach and the classification idea make sense. One approach is a statistical argument, one is a logical argument...so, the question is, does this seem overall like a generally good set of approaches.**
- **Dan Marks: Regarding classifications, how were the Presumpscot portions delineated?**
  - *Mike Paul: Presumpscot has riverine and lower riverine portions, and these will be distinguished in the summary memo.*
- **Fred Dillon: Are there any particular approaches that will best predict empirically measured values?**
  - *Mike Paul: Reference-based approach not predictive. Multiple regression models do aim to predict reference conditions (ex. predicted vs. observed value plots) and use R^2 value to essentially illustrate success of prediction. With salinity and temperature model, can predict about 1/3 of variability, so 2/3 of variability unexplained. Each approach has trade-offs that can be weighed during consideration of recommendations to protect designated uses, and each approach has its own associated variability.*
  - *Curtis Bohlen: Models are only as good as the data, and are based on statistical and logical arguments. Some of the thresholds from reference data are based on handful of samples. No perfect answer. Need to think about how reasonable approaches are to addressing problem.*
- **Matt Liebman: We have areas where seagrass exists today off the East End and elsewhere. Let's look at its condition and not aim for any N value higher the current measured levels (around 0.29 mg/L at East End).**
  - *Angie Brewer: Yes, the seagrass at East End is at the edge of being "healthy". One wouldn't want a nitrogen condition that is worse than pre-2018 level, when load reductions occurred from the wastewater treatment plant. This could be part of the weight of evidence.*

DISCUSSION: CONSIDERING A RECOMMENDED PATH FORWARD

David Plumb started the discussion around a recommended path forward by taking the temperature of the group with two Zoom polls. The first poll asked:

- Does the classification of riverine, lower riverine, and open water make sense for the Portland area? Of 15 respondents:
  - 4 – Yes, definitely
  - 8 – I think so
  - 2 – I'm not sure yet
  - 1 – I'm feeling uncomfortable with what I'm seeing.

The discomfort came from concerns about the connection between zones and nutrient transport, and the implications for permitted discharges in a given zone. Participants said hydrodynamic modeling will be important to address these concerns.

A second question asked:

- Do these approaches in general look like reasonable ways to address nitrogen criteria in the Portland area? Of 15 respondents:
  - o 3 – Yes, definitely
  - o 9 – I think so
  - o 3 – I'm not sure yet

Below are member questions and comments that followed these opening polls. PANG member comments and questions are **bolded**, answers are attributed and *italicized*, and any further comments or questions made by members are in regular text.

- **Scott Firmin, Fred Dillon: If have different segments, then where would the different criteria apply for discharge purposes? With a freshwater discharge, is this considered a riverine classification, or something else? Is this a permitting scenario, handled through a separate process?**
  - o *DEP: Could be if influence of freshwater discharge is measurable in the riverine (upper estuarine) area, then riverine criteria could apply since the discharge could be affecting downstream resources. Gradient approach in estuary (upper riverine to lower riverine to open waters) could address freshwater to upper riverine (estuarine) transition such that criteria in upper riverine segment approximates that in adjacent freshwater.*
- **Dan Marks: Makes sense to classify these areas into buckets, but unclear how transport of nitrogen across classification boundaries is affecting fate.**
  - o *Curtis: From State of the Bay analyses, nitrogen concentration coming out of the Presumpscot River is well below what is observed in the Presumpscot Estuary, so good question about how to relate what is coming from discharges to how that is measured in ambient waters. Hydrodynamics and circulation matter. Even in estuaries with low anthropogenic nitrogen loading, higher nitrogen concentrations are observed in the upper estuaries.*
- **Matt Hight: For discharges above Head of Tide, would riverine modeling approach apply for permits or more complex modeling done in estuaries?**
  - o *Rob Mohlar: Trickier than just applying freshwater discharge modeling approach. Comes down to what zone of influence is acceptable. Discharges probably can't meet potential criterion at end of pipe, so further discussion needed to address this.*
- **Matt Liebman: Could classification approaches be used statewide or if additional classes could be used for different types of estuaries (e.g. places with longer residence times)?**
  - o *Angie Brewer: Yes, possible, but implementation could be challenging in areas where we know even less about hydrodynamics. May not work within current timeframe for rulemaking.*

- o *Curtis Bohlen: Tried salinity-based approach for doing this, and there are different ways that the data can be divided. Need to put approaches in policy context. Whether we have data to back up different approaches is a big question.*
- o *Matt Hight: This issue could be addressed through site specific criteria in the rule.*
- o *Mike Paul: Nothing magical about classification boundaries. May want an area-wide average value instead of having to meet a single value within a given segment.*
- **David Plumb: Are people leaning toward one approach, both approaches, and if both is there a weighting that people would give?**
- **Wendy Garland: For the top 4 reference approach, those values could be overly conservative. Should we compare top 4 to top 7, for example, to see how ranges compare, or just look at top 4 in the context of stressor-response numbers?**
  - *Tetra Tech: There is nothing magical about 75th percentile but there is a tradition with its use. At the end of the day, you can look at the values generated, and look at the weight of evidence, and there can be convergence around different pieces of evidence in terms of derived values.*
  - *Galen Kaufman: These are all supportable approaches in their own right.*
- **David Plumb: What does group/members need to have happen prior to April to be able to make a recommendation to DEP?**
- **Gregg Wood: Currently using total nitrogen values of 0.45 mg/L and 0.32 mg/L in permits, and the values from the analyses aren't all that far away so why not just move forward with that?**
  - o David Plumb: A good question for the group. Those numbers are referenced in Mike's presentation slides.
  - o Matt Liebman: Partial to light attenuation approach because combination of reference and stressor-response, and there is a nice conceptual model and good data for light requirements for eelgrass. Based on that, wouldn't like 0.32 in open waters because still seeing impacts on eelgrass at average values below that level. Can make a case that number needs to be below 0.29 mg/L even for open water. So no, not comfortable with 0.32 mg/L for open water.
  - o Curtis Bohlen: We can understand different contexts for standards, and I agree that open water systems have considerably lower TN concentrations than 0.32 mg/L threshold currently used, but that isn't the case in upper estuary systems. Need to think about location in a more nuanced way instead of just one statewide number.
  - o Fred Dillon: Different context approach acknowledges reasons for application of different classifications.
- **Scott Firmin: It would help me if there was a recommendation to support or review.**
  - o David Plumb: Will there be a straw man for the group to review following the summary memo?
  - o Angie Brewer: Would be nice to have a checklist from summary memo if possible, that includes potential ways forward to stimulate discussion on distinct approaches, that would also help with consensus building.
- **David Plumb: When does discussion of nutrient transport as related to permit applications happen? At PANG meeting 4+ or as part of later stakeholder meetings?**

- o Angie Brewer: Inevitably they will be discussed somewhat at meeting 4+ but largely these issues will play out as part of later stakeholder (rulemaking) meetings.

WHAT'S NEXT?

For next steps, Angela Brewer signaled the PANG would hold a final 90-minute meeting on April 5, in which the PANG will consider its recommendation for addressing nitrogen criteria in the Portland area. Prior to that, Mike Paul will provide a final memo with his technical results. The document will be about 10-15 pages plus appendices. Angela Brewer said DEP will work internally to put together a checklist of potential ways forward to assist the PANG with formation of recommendations.

APPENDIX A: PANG MEETING PARTICIPANTS – MARCH 3, 2022

Marti Blair, Casco Bay Estuary Partnership
Curtis Bohlen, Casco Bay Estuary Partnership
Bill Boornazian, City of Portland
Damian Brady, University of Maine
Angela Brewer, Maine DEP
Fred Dillon, City of South Portland
Cindy Dionne, Maine DEP
Mike Doan, Friends of Casco Bay
Scott Firmin, Portland Water District
Wendy Garland, Maine DEP
Matt Hight, Maine DEP
Galen Kaufman, US EPA
Brian Kavanah, DEP
Sierra Kuun, Portland Water District
Matthew Liebman, US EPA
Dan Marks, Town of Falmouth
Rob Mohlar, Maine DEP
Melissa Paly, Great Bay – Piscataqua Waterkeeper
Michael Paul, Tetra Tech (N-STEPS contractor)
Jim Stahlnecker, Maine DEP
Brad Weeks, City of South Portland
Tom Wiley, City of South Portland
Wil Wollheim, University of New Hampshire
Gregg Wood, Maine DEP

David Plumb, Consensus Building Institute