

# Portland Area Nitrogen Group Meeting Summary

Virtual Meeting No. 1 | January 29, 2021 | 9 AM – 12 PM ET

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## MEETING OBJECTIVES

On January 29, 2021, the Portland Area Nitrogen Group (PANG) held its first meeting. The objectives of the first CAG meeting were to:

- Build a shared sense of purpose around the group's objectives
- Provide essential background information – how we got here
- Improve our collective understanding of nutrient criteria and their implications
- Confirm the group's workplan for 2021

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

## WELCOME AND INTRODUCTIONS

Angela Brewer, Section Leader of the Marine Unit at the Bureau of Water Quality in the Maine Department of Environmental Protection (DEP), opened the meeting with remarks, highlighting the diversity of expertise and perspectives this group brings to address the issue of nitrogen criteria rulemaking. Curtis Bohlen, director of the Casco Bay Estuary Partnership (CBEP), also provided opening remarks, raising that the formation of this PANG was one of the top recommendations coming out of the Nutrient Council Work from two years ago and noting CBEP's role as a convenor to support this informal discussion prior to formal rulemaking.

Members were then divided into four breakout groups for an introductory activity, responding to the below questions:

- When you have described this advisory group to your colleagues, what have you said about it?
- What is one thing about yourself that nobody in this group knows?

## PRESENTATION: BACKGROUND AND GROUP OBJECTIVES

Angela Brewer, Maine DEP Bureau of Water Quality, provided an overview presentation on the milestones that led to the convening of the PANG, building from nutrients wreaking havoc in the 1990s to federal and local calls to action in the late 1990s / early 2000s to key reports and memos published since 2008 to present day state efforts. Following detail of previous efforts, Ms. Brewer focused in on Maine's Department of Environmental Protection's (DEP) goals for 2021:

- Via N-STEPS support, develop site-specific total nutrient thresholds for application in reasonable potential analyses in wastewater licenses
- Utilize products of N-STEPS data analysis to inform rulemaking potential for Portland-area marine nitrogen criteria
- Complete rulemaking for Portland-area marine nitrogen criteria, potentially in 2022

Complete presentation slides are available to view [here](#).

Below are member questions and comments that followed Ms. Brewer's presentation. PANG member questions are **bolded**, answers from DEP staff and/or CBI are *italicized*, and any further comments or questions made by members are in regular text.

- **Looking at the priorities, is there any reason to believe that the thresholds PANG develops will be any different from the rulemaking process? Are you assuming they will be the same numbers or a process of review and modification? Sounds like the thresholds for the reasonable potential analyses (RP) serves a different purpose than criteria for a water quality standard program. Are they going to be the same?**
  - *Total nitrogen (TN) values would be the same. DEP's hopes to have effects-based criteria, resulting in more than TN values to incorporate into rulemaking.*
- **What is the clarification between "thresholds" and "criteria"?**
  - *The words "threshold," "guidance value," and "targets" all refer to quantities that cannot be used for water quality standards determination. If those quantities are thresholds, they can be used to guide wastewater discharge, but will not be taken to the level of "criteria."*
- **Will there be more information provided on end-of-pipe general ambient condition and how will this be applied after the rulemaking?**
  - *Later presentations today will touch on this and looking at the permits will help build greater understanding as well.*
- **For the N-Steps project, are you looking at all wastewater dischargers?**
  - *Yes. The analysis started out looking at major discharges only, but it has been expanded. To clarify, the NSTEPs project is not an RP but more of a scientific process collecting and analyzing data to develop a conceptual model.*
- **What kinds of models and dispersion processes are involved in far-field dilution modeling? Do you model discharges separately or as one ocean model?**
  - *The methodology varies greatly depending on the site and circumstances; every discharge has a unique character as it enters the ambient environment and where it effectively normalizes. The key is determining the point at which we characterize the discharge plume as somewhat normalized within the environment. We have confined estuaries where mixing is a little more predictable and open ocean discharges where mixing processes are more subtle. The goal is understanding the specific process of each discharge. There is no specific model. These are not highly sophisticated models, rather generalizations of what we know about the specific areas.*
- **Are there good estimates of residence time for Casco Bay or each of the sources?**
  - *There are varying degrees of characterization, depending in part on the location within Casco Bay (e.g., confined areas versus open ocean).*
- **During our last permit, all the questions that have been asked today had been brought up. While I think some degree of conflict can yield solutions, this was a major contention. As I participate in this group, one of the questions I'll have is what is the model that is used to develop the criteria for end-of-pipe concentrations.**

### **PRESENTATION: APPLYING NUTRIENT CRITERIA IN REGULATION**

Don Witherill, Director of the Division of Environmental Assessment at Maine DEP, framed up a presentation on using nutrient criteria to regulate water quality with remarks on how this process is done in freshwater environments. He described the freshwater nutrient criteria process to date, a similarly long-term process also grappling with setting criteria, highlighting the development of a decision framework that looks at total phosphorus values as well as seven proposed response indicators to determine whether the water body is in attainment. *Mr. Witherill's complete remarks are available to view [here](#).*

Angela Brewer and Gregg Wood, from Maine DEP Bureau of Water Quality, then presented on how the Portland area can be defined in the context of nutrient criteria, explored the range of TN concentration and variability within the area's hydrologic cycle, and commented on the importance of determining the loads from both stormwater and point-source discharges to prevent undue burden on point-source contributors. Ms. Brewer closed the presentation by sharing PANG's goals for 2021:

- Provide perspectives on considerations for threshold and criteria development, and implementation challenges
- Influence N-STEPS contractor data analysis plans
- Advise DEP on application of criteria and timeline for rulemaking

Complete presentation slides are available to view [here](#).

Below are member questions and comments that followed Ms. Brewer and Mr. Wood's presentation. PANG member questions are **bolded**, answers from DEP staff and/or CBI are *italicized*, and any further comments or questions made by members are in regular text.

- **It will be important to understand contributions to inform regulation. Is there any greater clarity on how stormwater contributions will inform this process?**
  - o *We don't want to put burdensome limits on a point-source or wastewater discharge if stormwater is the larger issue. Determining the role of stormwater contributions is a key step as we move forward.*
  - o *The MS4 permit is in the process of being finalized, with greater focus on identifying nutrient loading sources, which will be part of the solution for what we are trying to achieve.*
- **If this turns regulation results in a business expense for seafood processors, for example, the City can support and work with our businesses. But, if there is a question of inequity among any affected parties, we should expect for them to reach for lawyers, not checkbooks.**
- **One of the differences between the RP analysis is that it's targeted to specific permits, so it doesn't reach towards stormwater consequences, which are handled with a general permit. Whereas if we establish criteria, it could eventually refine those general permits to address some of the stormwater issues.**
- **What are current impacts from nitrogen? When we started on this process in the Casco Bay Plan, we talked about our goal being to make sure current conditions don't worsen.**
  - o *Later presentations today will discuss current impacts at a high level. PANG's April meeting will go into greater detail on impacts, looking at eel grass, algal blooms, etc.*
- **PANG needs to differentiate between what criteria is and what permitting is. Assigning responsibility is the permitting part of this effort. The two need to be separated to determine necessary criteria to meet ambient water quality standards and then, later, who pays the price to meet those standards. Science needs to be used to establish criteria and permitting comes after.**
  - o *PANG will be working on both criteria development and implementation. Criteria development is something that needs to happen in the near term, but we will also need to address implementation concerns.*

## DISCUSSION: THE GROUP'S WORKPLAN FOR 2021

David Plumb, CBI Facilitator, shared PANG’s anticipated 2021 workplan, featuring four meetings from January through October, and proposed basic meeting guidelines for this group, including how it will make decisions. He noted that, while reaching consensus on an approach is not a requirement of this group, PANG will strive to reach an agreement on a recommended approach that will influence the DEP’s rule-making process. If differing views persist, they will be reflected in the group’s final output. *Complete presentation slides are available to view [here](#).*

Below are member questions and comments that followed Mr. Plumb’s presentation. PANG member questions are **bolded**, answers from DEP staff and/or CBI are *italicized*, and any further comments or questions made by members are in regular text.

- **To clarify expectations around N-STEPS, it is a scientific, data-driven process with a workplan. The process will make some recommendations, but it will not address implementation considerations or DEP’s criteria decision-making. N-STEPS will be looking for advice and input from PANG, but it will be focused on the available science and its existing scope.**
  - *PANG will serve as a filter to digest info from N-STEPS and inform how this group wants to develop criteria.*
  - *EPA: N-STEPS usually capitalizes on the mind-trust from groups like PANG to fine-tune work plans and inform direction of the project.*

### DISCUSSION: MAKING DECISIONS IN THE FACE OF UNCERTAINTY

Angela Brewer, Maine DEP Bureau of Water Quality, provided an overview presentation on decision-making amidst uncertainty, describing the challenge PANG faces and identifying both available and absent information to inform decision-making. She highlighted that, “This Advisory Group’s efforts will inevitably require judgment calls based on imperfect information.” *Complete presentation slides are available to view [here](#).*

Following Ms. Brewer’s presentation, PANG members were asked to share any feedback on considerations and ideas that will help this group make decisions given the uncertainties and complexity surrounding the issue. Below is a brief synthesis of member inputs.

<b>Learning from other approaches</b>	<ul style="list-style-type: none"> <li>● In the freshwater regulation process, a key learning has been that developing a decision framework around thresholds and response indicators rather than setting absolute numbers – incorporating flexibility to help manage complexity.</li> <li>● While experiences from different locations or environments have varying degrees of application to the Portland area context, PANG could explore approaches like those used in New Hampshire, Florida, and Hawaii; processes in Long Island Sound, Chesapeake Bay, and Buzzards Bay; as well as Maine’s work on phosphorus in freshwater. The April PANG meeting will explore some of these approaches in greater depth. <ul style="list-style-type: none"> <li>○ Every state has nutrient criteria, and most are narrative. Many states have developed values to translate narrative criteria.</li> </ul> </li> </ul>
<b>Seeking additional data</b>	<ul style="list-style-type: none"> <li>● PANG should tap into its available expertise (e.g., Damian Brady) to develop more comprehensive modeling.</li> <li>● To address coastal acidification concerns, Mike Paul is developing a conceptual model that will include coastal acidification as an indirect</li> </ul>

	<p>impact. Friends of Casco Bay will also continue to do seasonal modeling at sites and will be adding a monitoring station in Fore River to provide hourly data to calculate coastal acidification impacts.</p> <ul style="list-style-type: none"> <li>o Shared resource on coastal acidification:  <a href="https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2019JC015556">https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1029/2019JC015556</a></li> </ul> <ul style="list-style-type: none"> <li>● One method used by EPA to determine conservative or protective approach is to conduct a logistic regression with the stressor and the probability of impact.</li> <li>● Key question: How does PANG approach the issue that without a clear baseline and no comprehensive circulation model?</li> </ul>
<p><b>Developing decision-making criteria</b></p>	<ul style="list-style-type: none"> <li>● Any performance standard needs to be roughly proportional to impact and have a fair/equitable application.</li> <li>● Crossing a threshold may require an enhanced response to lead to improvement.</li> <li>● The process of developing criteria is a scientific risk assessment; everything happens downstream of identifying a safe number. Developing safe thresholds will facilitate better plans for addressing the issue.</li> <li>● This process should consider how to generate trust while conducting good science to ensure the product is defensible.</li> <li>● In the EPA’s Water Quality Standards Program, the language of the standard is to protect a designated use, which implies a conservative or protective approach.</li> <li>● PANG could explore how waste flow allocations and TMDLs relate to criteria setting as one way of determining responsibility.</li> </ul>

### NEXT STEPS & WRAP UP

David Plumb, CBI Facilitator described the next steps for the PANG, creating a shared Google Drive file space with an annotated guide of reference materials, planning and scheduling the April PANG meeting, and sharing materials and a high-level summary from this meeting. Mr. Plumb invited feedback from members on what to address on the April meeting agenda. Angela Brewer, Maine DEP Bureau of Water Quality, closed the first PANG meeting, expressing gratitude for members’ time and efforts.

## APPENDIX A: PANG MEETING PARTICIPANTS

Susie Arnold, Island Institute  
Marti Blair, Casco Bay Estuary Partnership  
Curtis Bohlen, Casco Bay Estuary Partnership  
Angela Brewer, Maine DEP  
Kelly Cole, University of Maine  
Paul Collins, City of South Portland  
Tom Danielson, Maine DEP  
Fred Dillon, City of South Portland  
Cindy Dionne, Maine DEP  
Scott Firmin, Portland Water District  
Sara Freshley, Friends of Casco Bay  
Ivy Frignoca, Friends of Casco Bay  
Nancy Gallinaro, City of Portland  
Galen Kaufman, US EPA  
Matthew Liebman, US EPA  
Rob Mohlar, Maine DEP  
Bill Needelman, City of Portland  
Melissa Paly, Great Bay Waterkeeper  
Michael Paul, Tetra Tech (N-STEPS contractor)  
Kristie Rabasca, Maine Water Environment Association  
Toby Stover, US EPA  
Jessica Waller, Maine DMR  
Carl Wilson, Maine Department of Marine Resources  
Don Witherill, Maine DEP  
Wil Wollheim, University of New Hampshire  
Gregg Wood, Maine DEP  
Emily Zimmermann, Maine DEP

David Plumb, Consensus Building Institute  
Maggie Osthues, Consensus Building Institute