

Great Bay Estuary, NH October 7, 2019

Background

The Great Bay estuary—an estuary of national significance and a critical resource in New Hampshire—has experienced low dissolved oxygen, macroalgae blooms, and declining eelgrass habitat for a number of years, all signs of eutrophication driven by excessive nitrogen loading. About 33% of the nitrogen is discharged by 17 wastewater treatment facilities (WWTFs); the rest is from non-point sources, notably stormwater runoff, septic systems, and atmospheric deposition.

EPA and NH DES have been working for years with Great Bay communities to reduce nitrogen from both point and nonpoint sources. Many communities have upgraded their WWTFs, and some are working to reduce stormwater loads.

As EPA and NH DES began working on the next round of NPDES permits (EPA is the permit authority, but we work closely with the state), communities in the watershed urged the agencies to consider an adaptive management approach that would allow them to invest in nonpoint source reduction first. The communities expressed their belief that nonpoint source controls would be more cost-effective, and that these reductions could avoid the need for expensive upgrades to wastewater treatment facilities. EPA and NH DES have developed such an approach, which would be embodied in a general permit for all WWTFs in the watershed.

EPA/NH DES permitting approach

There is no nitrogen TMDL for Great Bay, nor has the state developed a numeric nitrogen criterion, so EPA and NH DES cannot rely on a wasteload allocation or numeric WQS to set permit limits. Instead, we need to use the best available scientific information to identify the nitrogen reductions needed to meet water quality standards. Working with ORD, the region and NH DES developed an overall nitrogen reduction target for the watershed based on our best understanding of the science. To meet this target, nitrogen loads in the estuary need to be reduced by at least one-third (greater reductions may ultimately be needed, but as part of an adaptive management approach we chose to start with the smallest reduction that has a possibility of meeting WQS).

Ordinarily, the level of nitrogen reduction needed in Great Bay would drive the agencies to set WWTF permit limits at the limit of technology (often considered to be 3 mg/L). However, EPA and NH DES have developed a draft permit which largely accommodates the communities' desire to avoid further upgrades at WWTFs and focus instead on nonpoint sources. For the seven largest facilities (with flows over 2 mgd), the permit sets mass limits based on the communities' current flow levels and a nitrogen concentration of 8 mg/L. Almost all communities can meet these limits with existing facilities, avoiding the need for further capital investments.¹ For the

¹ One community (Rochester) may need additional treatment facilities to meet even these relaxed limits. Other communities could hypothetically need additional treatment if they significantly increase their flow, since the mass limit is based on existing discharge rates.

smaller facilities, the permit would set limits based on current flows and concentrations, essentially holding the load where it is today.

These relaxed WWTF limits will not significantly reduce nitrogen loads to Great Bay, and the permit will not result in attainment of water quality standards unless nonpoint sources are addressed (EPA and NH DES have calculated that without more stringent WWTF limits, nonpoint source nitrogen loads will need to be reduced by approximately 45% to meet the WQS-based loading target). For this reason, NHDES initially sought to require these nonpoint source reductions in the permit, as a condition of the state's section 401 certification.

The state has now shifted from that position. We have agreed that the nonpoint source reductions will not be required by the permit, but that the agencies will make clear in their supporting documentation (EPA's permit fact sheet and the state's 401 certification) that the relaxed point source limits are based on an assumption that the communities will reduce nonpoint source loads, consistent with their expressed preference to invest in those sources first. The agencies will state their expectation that these reductions—combined with the permit's "hold the load" approach at WWTF's—will be sufficient to meet WQS.

The permit recognizes that achieving nonpoint source reductions on this scale will take longer than one permit term, and sets forth an adaptive management approach, including four five-year phases of nonpoint source work. Implementation of this approach is not a permit requirement, but rather a recommended option for communities to achieve the nonpoint source reductions needed to avoid more stringent point source limits. Ambient water quality would be monitored over the course of this work, and targets could be adjusted based on the latest science. NH DES and EPA will state that if the expected nonpoint source reductions do not occur, future permits may need to establish tighter limits on WWTFs to ensure that WQS are ultimately met (and if the communities do not implement the planned nonpoint source activities, the permit could be reopened for modification if necessary).

Permittee engagement

EPA and NH DES engaged extensively with permittees over the past several years, both with groups of communities and with individual permittees (just in the past year, there have been seven face-to-face meetings as well as numerous calls and emails). These interactions have included extensive discussions of possible permit approaches and the scientific foundation for nitrogen limits. The NH governor's office participated in some of these meetings, and the governor has expressed support for expeditious resolution of the issue; for an adaptive management approach; and for a permit that addresses water quality concerns and meets legal requirements so it can withstand an appeal by environmental groups (which would create uncertainty for permittees and businesses). The region believes the draft general permit satisfies those interests.

One key reason to move forward expeditiously is that the permit is needed to establish nitrogen limits for the Pease WWTF in Portsmouth, NH, in order to allow a large employer to significantly expand their facility (Portsmouth and the company need to know what the nitrogen limit will be, in order to finalize their plans). New Hampshire estimates that 1,000 local jobs are at stake, and this is a key factor in the governor's interest in speedy issuance of the permit.

(b) (5)

[Redacted]

Peer review request

On Oct. 1, Dover and Rochester wrote to the AA for Water and the Region 1 RA to request that EPA conduct a “peer review” of the methodology behind the general permit. (b) (5)

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