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For a thriving New England

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Mr. Ken Moraff, Water Division Director
USEPA Region 1 – New England
5 Post Office Square
Boston, MA 02109-3912

Mr. Clark Friese, Assistant Commissioner
NH Department of Environmental Services
29 Hazen Drive
Concord, NH 03301

VIA EMAIL

Dear Ken and Clark:

As you know, Conservation Law Foundation ("CLF") has been participating in and closely following the evolving discussion about a general permit for nitrogen as an approach to achieving the necessary nutrient reductions to restore the health of the Great Bay estuary. We appreciate the opportunity to participate in these discussions.

It is our understanding that the process of developing a permit is under way. While we will provide comments on the draft permit once it has been published, in the meantime we are writing to provide some initial questions and concerns about what has been discussed to date as a general approach toward this permit.

1. Since the beginning of this process, we have questioned the presumption that 100 kilograms per hectare per year is the appropriate target for nitrogen load in the Great Bay estuary. Based on the three papers[1] that EPA and DES are using as a scientific basis for setting a threshold, it is clear that 100 kg/ha/yr represents the absolute outer limit for eelgrass survival. While your analysis indicates that it will take substantial effort to achieve even this threshold over a 20-year time frame, and that an adaptive

[1] Valiela, I and Cole, M. *Comparative Evidence that Salt Marshes and Mangroves May Protect Seagrass Meadows from Land-derived Nitrogen Loads*. **Ecosystems** (2002) 5: 92–102
Hauxwell, J, Cebrián, J and Valiela, I. *Eelgrass Zostera marina loss in temperate estuaries: relationship to land-derived nitrogen loads and effect of light limitation imposed by algae*. **Marine Ecology Progress Series** (2003) Vol; 247:59-73.
Latimer, J and Rego, S. *Empirical relationship between eelgrass extent and predicted watershed-derived nitrogen loading for shallow New England estuaries*. **Estuarine, Coastal and Shelf Science** 90 (2010) 231-240.

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management approach allows EPA to revisit the threshold if ecological response is not observed, we have two related concerns. First, as CLF advocated years ago in the context of DES's analysis of numeric nitrogen criteria for the estuary, we believe that regulatory efforts should not be focused on safeguarding eelgrass survival but, rather, on establishing the conditions necessary for eelgrass to thrive. Second, given the importance of this new regulatory approach and the lengthy timeframe under consideration (twenty years, or four permitting cycles), we strongly question the selection and use of a nitrogen target that is on the outer edge of what is necessary for eelgrass survival. Given that eelgrass serves as the cornerstone habitat for the estuary, and in light of other stresses, including but not limited to climate change, we urge EPA and DES to pursue a more protective nitrogen threshold. We are greatly concerned that the 100 kg/ha/yr threshold will fail to achieve conditions for eelgrass recovery or long-term sustainability.

2. In addition to performance requirements, each five-year permit must also include metrics for water quality monitoring and ecological response. What water quality parameters will be used to assess nitrogen load reductions, and what benchmarks for recovery will be considered to assess whether the estuary is on a path to recovery before the permit is issued for another five-year term? For example, it is of critical importance that, for purposes of benchmarking and measuring progress, eelgrass biomass – and not just eelgrass *cover* – be evaluated on an ongoing basis.

3. A recent paper[2] shows a substantial reduction in the amount of atmospheric nitrogen that is deposited on land surfaces. In light of this new research and data, the model used for assumptions about nitrogen sources in the estuary should be recalibrated to account for such reductions.

4. One of the premises for this new approach to nitrogen regulation is that it will bring about more rapid nutrient reductions as compared to the individual permit approach. We are hopeful that the permit will result in more aggressive actions early in the permitting cycle, consistent with Clark's "time value of nitrogen" model. If the general permit is not established to reasonably deliver a more rapid ecosystem response, then it brings into question whether this is an advantageous approach.

[2] Valiela, I, Owens, C, Elmstrom, E, and Lloret, J. *Eutrophication of Cape Cod estuaries: Effect of decadal changes in global-driven atmospheric and local-scale wastewater nutrient loads*. **Marine Pollution Bulletin** (2016).

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Thank you for your collective efforts to consider alternative regulatory mechanisms that, while providing municipalities greater flexibility, will bring about more aggressive nitrogen reductions and speedier recover of the Great Bay estuary. We hope that you will take these comments into consideration as the permit is drafted, and would be pleased to discuss these matters with you at your convenience.

Sincerely,

Melissa Paly
Great Bay-Piscataqua Waterkeeper

Meredith Hatfield
Senior Attorney

cc: Tom Irwin, V.P. and CLF New Hampshire Director