Attachment 1

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August 30, 2012

VIA U.S. FIRST CLASS MAIL & E-MAIL

Stephen S. Perkins
Director, Office of Ecosystem Protection
U.S. Environmental Protection Agency - Region 1
5 Post Office Square - Suite 100
Boston, MA 02109-3912

RE: Supplemental Comments in Response to Proposed Draft NPDES Permits for the City of Dover, NH – NPDES Permit No. NH0101311, Town of Exeter, NH NPDES Permit No. NH0100871 and Town of Newmarket, NH NPDES Permit No. NH0100196

Dear Mr. Perkins:

The Great Bay Municipal Coalition (the Coalition) is an organization dedicated to the establishment of appropriate and cost-effective restoration measures to protect Great Bay and its resources. The Coalition represents the six major communities whose wastewater flows into various parts of the Great Bay system – Dover, Durham, Exeter, Newmarket, Portsmouth, and Rochester.

Per my email dated August 15, 2012, I am submitting supplemental comments (attached) based on information not previously available at the time permit comments were due for the proposed draft NPDES permits referenced above. This letter provides the specific references to sworn testimony given by Philip Trowbridge, Dr. Fred Short, and Paul Currier that confirms, *inter alia*, there are no data or studies showing nitrogen induced cultural eutrophication of Great Bay has occurred. This testimony also confirms that EPA has misapplied the state's narrative criteria in developing the proposed permits and in concluding that nitrogen reduction is necessary to allow for eelgrass propagation in this system. Copies of full depositions with exhibits will be submitted to EPA by local counsel for the permittees. Copies of the deposition transcripts are being provided electronically with this filing.

Thank you for your consideration of these supplemental comments.

Sincerely,

John C. Hall

Enclosures

cc: Coalition Members
Ted Diers, DES

Supplemental Comments of the Great Bay Municipal Coalition

The following information, not previously available at the time permit comments were due, is hereby submitted in response to the proposed draft NPDES permits for the cities of Dover, Exeter and Newmarket. As discussed below, this new information demonstrates that the proposed stringent nitrogen limitations are not scientifically justified and fail to reflect applicable state narrative standards that were purported to be the basis for developing the draft permits. Given this new information, most based on sworn testimony, the need for stringent nitrogen limitations is not legally or technically justified. Consequently, the proposed permits should be withdrawn.

1. Use of the Draft 2009 Criteria Did Not Implement Existing State Narrative Criteria or Demonstrate Narrative Criteria Violations Existed.

Currently, the only duly promulgated New Hampshire water quality criteria addressing nutrients in estuaries are found at Env-Wq 1703.14(b), which states:

> Class B waters shall contain no phosphorus or nitrogen *in such concentrations that would impair any existing or designated uses*, *unless naturally occurring*. (emphasis supplied). The regulations continue:
>
> Existing discharges containing either phosphorus or nitrogen which encourage cultural eutrophication shall be treated … to ensure attainment and maintenance of water quality standards. Env-Wq 1703.14(c).
>
> "Cultural eutrophication" is defined as "human-induced addition of wastes containing nutrients to surface waters which results in excessive plant growth and/or a decrease in dissolved oxygen." Env-Wq 1702.15.

DES also has a narrative standard regarding "aquatic community integrity," which indicates, in relevant part, that "differences from naturally occurring conditions shall be limited to non-detrimental differences in community structure and function." Env-Wq 1703.19(b).

The key evidentiary component of the narrative nutrient criterion is that a violation is only found when it is demonstrated that nutrients *are causing* the impairment (***e.g.***, "in such concentrations that would impair"; "human-induced addition of … nutrients … which results in"). As discussed below, this essentially requires a "cause and effect" demonstration to find a violation of the narrative criteria. In issuing the draft permits, EPA indicated that it was relying on the states existing narrative criteria as the basis for (1) finding nutrients were the cause of impairments and (2) using the 2009 Numeric Nutrient Criteria as a "narrative translator." Our prior comments noted that to claim a nutrient limitation is necessary to eliminate use impairments and protect ecological resources under the state's narrative

standard, EPA must first demonstrate that the nutrient at issue (nitrogen) caused the impairment, otherwise defined as "cultural eutrophication" (excessive algal growth causing impairment such as DO violations – Env-Wq 1702.15) under state law. Moreover, any "narrative translator" must be based on a system-specific defined "cause and effect" relationship showing the nutrients have caused such "cultural eutrophication." The permit action is premised on the *assumption* that the waters are nutrient impaired, which itself was based on application of the 2009 Criteria in the Section 303(d) process. The Coalition noted that because the 2009 Criteria, at best, demonstrated a correlation and did not prove causation (and was not based on a demonstrated site-specific causal relationship for Great Bay estuary), such criteria could not be used as a proper "narrative translator" or as a scientifically defensible basis for demonstrating that the waters were actually nutrient impaired in violation of the narrative criteria. Moreover, it was further noted that algal levels had not changed despite the claimed increase in DIN levels in the system. (State of Estuaries Reports 2000, 2003, 2006 and 2009) Thus, there was no indication that "cultural eutrophication" has occurred as a result of the alleged changing DIN levels and thus no evidence of narrative criteria violations. The data evaluation for the 2012 SOE also confirmed no significant change in algal levels in 40 years despite a 60 percent increase then 40% decrease in inorganic nitrogen levels. (Exh.1- Long term average nutrient and algal levels at Adams Point)

a) Deposition Testimony Confirm No Cause and Effect Demonstration

Mr. Paul Currier of DES confirmed that any claim of narrative criteria violations requires a documented *causal relationship* between nutrients and excessive plant growth adversely impacting designated uses (*See* Currier Dep. at 18, 19, 134)[1]. Both Mr. Trowbridge and Mr. Currier confirmed that the 2009 Criteria is not based on a demonstrated causal relationship for either transparency or DO. (See, Currier Dep. at 77, 80, 147; Trowbridge Dep. at 413-416, 445-446; Short Dep. at 173-175) The relationships were only correlations – a fact EPA itself knew in 2008. (Trowbridge Dep. Exh. 88) Thus, the 2009 Numeric Nutrient Criteria, cannot be a proper translator of the existing narrative criteria, as a correlation does not establish that a causal relationship exists and the narrative criteria requires a causal demonstration. Id. Moreover, both Mr. Currier and Mr. Trowbridge noted that merely exceeding values contained in the 2009 Criteria does not provide a demonstration that a narrative violation exists. (Currier Dep. at 80; Trowbridge Dep. at 332-333) Thus, in designating the waters nutrient impaired in 2009 and thereafter, DES had made this presumption which is now admitted to be insufficient to actually declare those waters as nutrient impaired or to calculate permit requirements to meet narrative standards.

[1] Full copies of the Currier, Short and Trowbridge Depositions, plus exhibits have been provided to EPA by the Coalition's local counsel. Due to the voluminous nature of those documents they are not being resubmitted with these comments.

Based on these sworn acknowledgements on how state law is intended to operate, it was improper for EPA to presume that the exceeding the 2009 Criteria levels will or has caused eelgrass or DO impairment anywhere in the system. It was equally improper for EPA to presume that attaining compliance with the numeric values contained in the draft 2009 Numeric Criteria document, was necessary to avoid violating the state's narrative criteria. Finally, it was also improper to presume that, the 2009 Criteria accurately reflected the level of scientific demonstration required by the existing narrative standard to designate waters as nutrient impaired. In short, the 2009 Criteria reflected a series of unproven assumptions on conditions that may occur in estuaries but are not proven to be occurring in Great Bay estuary. Such speculation is not a basis for narrative criteria implementation and does not constitute "weight of evidence" that nutrients have triggered narrative criteria violations as assumed in EPA's proposed permitting action.

b) Available DES Analyses Confirmed No Narrative Criteria Violation Existed

EPA's permit action is premised on the assumption that nitrogen has caused narrative criteria violations and major nutrient levels are necessary to restore this system. These presumptions are also in error. There is no nitrogen-related eelgrass impairment demonstrated by any of the available site-specific data for this system. Mr. Trowbridge indicated that his prior research confirmed that nitrogen was not causing adverse water quality in Great Bay estuary. (See, Dep. Exh., 31, 32, 71 and 72) In particular, the following "findings" resulted from these data assessments and analyses:

- Nitrogen increased but algal levels did not change in the system.
- Algal levels are a minor component influencing system transparency; turbidity and color are the most important factors;
- There is no indication that transparency changed from 1990 through 2007 during the period of nutrient concentration increases.

EPA had been provided with these results via PREP and NHEP, but chose not to include them in rendering a determination that nitrogen reduction was required to address a narrative criteria violation associated with "transparency" and restore eelgrass populations. Mr. Trowbridge presented EPA with a PowerPoint review of his analyses confirming no such TN-algal-transparency connection existed for the Great Bay estuary in March 2008. Mr. Trowbridge acknowledged the assessment presented was accurate. Therefore, the subsequent "weight of evidence" analysis performed by EPA and DES in support of nutrient reduction that ignored these critical findings was deficient and entirely misplaced.[2] Elevated levels of

[2] It is apparent that both the state and EPA knew that these numeric criteria were based on confounded correlations that did not show TN caused the claimed changes in either transparency or DO (*See* Exh. 71, 72

TN can, but do not necessarily cause transparency impairments by stimulating excessive algal growth indicated by elevated chlorophyll-a concentrations. In the case of Great Bay, while TN increased 59% since 1980 through 2008, there was no corresponding increase in algal growth (Exh. 1 and Trowbridge Dep. 121-127). Accordingly, cultural eutrophication (i.e., documented negative impacts on uses due to excessive nutrient inputs), did not occur in Great Bay or the Piscataqua River up to 2007 as confirmed by Mr. Trowbridge (*See* Trowbridge Dep. at 326-328, 355-356, 433-434 and Currier 62-63, 69). Moreover, the 2007 transparency study completed by Morrison (Trowbridge, co-author) for Great Bay, concluded transparency was sufficient to support eelgrass in Great Bay and Little Bay and therefore other factors must be limiting eelgrass declines in the system. (Trowbridge Dep. at 235-236). This critical finding was left out of the 2009 Criteria document (Trowbridge Dep. at 436-438).

The analysis of algal growth for Great Bay, Adams Point, recently released by Mr. Trowbridge to the PREP Technical Advisory Committee, further confirms that no material change in algal level occurred since 1970s, despite increasing then decreasing DIN levels. (Exh. 1 - PREP 2012 Nutrient and Algal Charts for Adams Point) As no causal relationship has been documented between TN and algal growth adversely impacting transparency or low DO, there is no documented narrative criteria violation for nutrients (with no induced change, there can be no "cultural eutrophication"). Therefore, EPA's reliance on the impaired waters listings (that in turn relied on the 2009 Criteria) was misplaced and all permit calculations and requirements based on that impairment presumption are flawed. There is no demonstrable causal relationship between TN/TIN and algal growth, eelgrass loss, transparency decrease or minimum DO anywhere in the system. In summary, there are no documented cases, anywhere in the estuary, where increased nutrient levels have (1) caused eelgrass losses via any possible mechanism and (2) where transparency has been significantly decreased due to increased algal growth stimulated by increased nutrient loadings. The data and available studies (Jones, Pennock, HydroQual) do not show that algal growth is a significant contributor to low DO that occurs in virtually every tidal river. Absent, such information and a demonstration of a direct relationship to increased nutrient loadings, there can be no claim that narrative criteria violations are caused by nutrients from POTWs or that nutrient reduction will materially improve these conditions.

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and 88 – Trowbridge Dep.). This admission paired with the absence of legitimate scientific evidence renders the proposed TN criterion unsupportable as a narrative criterion implementation method. It also provides clear evidence that EPA intentionally overlooked the relevant scientific information in asking DES to claim that narrative criteria violations were caused by nutrient loads to the system. (Currier Dep. Exh. 34). Mr. Currier noted in his deposition that the 2009 Criteria would have been pulled back if the peer reviewers had concluded the analysis did not demonstrate cause and effect but was merely a correlation. (Currier Dep. at 147.) Thus, this was a very material, intentional omission from the technical reports used by EPA to claim stringent TN requirements are necessary.

2. Narrative Violation Related to Eelgrass Has Not Occurred in Tidal Rivers.

As noted in the prior comments and the regulatory citations listed above, changes in ecology due to natural conditions do not constitute narrative criteria violations or system impairments. EPA has proposed a transparency-based TN criterion be applied in the tidal rivers of Great Bay for the purpose of restoring eelgrass in these areas. As noted earlier, EPA assumed that algal growth had a major influence on transparency in the tidal rivers, again relying on the 2009 Criteria document – rather than looking at the relevant site-specific information for each of the tidal rivers. EPA claims this is necessary because eelgrass historically existed in these areas. The Coalition presented data from the tidal rivers confirming that TN negligibly impacts transparency and low tidal river transparency is a naturally occurring condition due to turbidity and CDOM occurring in those waters (e.g., Squamscott, Lamprey and Upper Piscataqua Rivers). Therefore, it would be improper to apply a TN criterion based on transparency, or to find any eelgrass impairment exists in such waters. Where natural transparency limits eelgrass growth in the tidal rivers or the effect of TN is negligible, there can be no "nutrient related" eelgrass/transparency" violation occurring in these waters. Therefore, EPA's application of the transparency-based TN criteria to set permit limits for the various tidal river facilities was unsupported factually and unnecessary to ensure compliance with the existing narrative standards.

Under deposition, Mr. Currier acknowledged that the mere historical presence of eelgrass in an area is not a sufficient basis to regulate nutrients. (Currier Dep. at 130-131). He further noted that it would be improper to apply the 2009 Numeric Nutrient Criteria to protect eelgrass if the data confirmed other factors were limiting eelgrass propagation. Id at 136-137. Based on a review of the very data submitted by the Coalition in its permit comments (Short Dep. Exh. 20-22), Mr. Trowbridge acknowledged that transparency is too poor in the major tidal rivers (Squamscott, Lamprey, Upper Piscataqua) to support eelgrass growth, due to the amount of color and turbidity present. (Trowbridge Dep. at 409-10, 421-428, 431-434). He acknowledged that both factors are naturally occurring in the watersheds. Id. at 427-431. With regard to the Exeter permit, Mr. Trowbridge agreed that reducing TN would have no meaningful effect on improving transparency in this tidal river. Id. He acknowledged that these available data not previously analyzed by DES in developing the 2009 Criteria document shows that (1) the effect of algal growth on transparency is negligible (2) CDOM and turbidity are the key factors controlling transparency in the tidal rivers system, (3) CDOM and turbidity in the tidal rivers come from natural sources and are not caused by nitrogen loadings and (4) regulating TN in the tidal rivers will not result in any demonstrable improvement in transparency. These are *precisely* the type of data and finding that Mr. Currier stated would obviate the need to achieve the recommendations contained in the 2009 Numeric Nutrient Criteria document. As such, imposition of the transparency-based TN

criterion by EPA to restore eelgrass in any of the tidal rivers is scientifically unsupported and not demonstrated necessary to comply with the applicable narrative standards. Given this testimony and the available data, there is no reasonable basis to impose nutrient reduction measures to protect eelgrass populations that do not and cannot exist due to factors unrelated to nutrients. It is per se unreasonable for EPA to seek to impose a TN criteria based on a transparency target (Kd of 0.75/m) that cannot and will not be achieved in the tidal rivers due to a host of factors unrelated to nutrient levels. Generally speaking, a State is the sole arbiter of its own regulations. *See United States Corp. v. Train*, 556 F.2d 822, 837-39 (7th Cir. 1977) (Federal courts and agencies are without authority to review the validity of requirements imposed under state law or in a state's certification). Moreover, it is per se legal error for EPA to implement the state narrative criteria in a manner inconsistent with the states interpretation of its own laws. *Kentucky Waterways Alliance v. Johnson*, 540 F.3d 469, 493 n.1 (6th Cir. 2008) ("In interpreting a state's water quality standard, ambiguities must be resolved by consulting with the state and relying on authorized state interpretations") (concurring opinion of Judge Cook relied on by Court, 540 F.3d at 469)

As eelgrass in the tidal rivers will not and cannot be restored due to natural conditions unrelated to nutrients or the degree of algal growth or nutrients present, nutrient regulation in these waters is not permissible based on eelgrass protection under either the aquatic community integrity or the narrative nutrient criteria.

3. Post 2006 Eelgrass Population Decreases in Great Bay and Lower Piscataqua River Could Not Possibly Have Been Due to Nitrogen

The main factor influencing the call for stringent nutrient regulation was the post-2005 decline in Great Bay and lower Piscataqua River eelgrass populations. Prior to this time, neither area was considered impaired for eelgrass (See, Trowbridge Dep. at 356; Currier Dep. at 62-63, 69; Short Dep. at 120-125; see also, figures presented in Trowbridge March 2008 presentation to USEPA showing stable eelgrass acreage in both areas) . The Section 303(d) listing record confirmed that the post-2005 dramatic eelgrass decreases in Great Bay and Lower Piscataqua River and litigation threats by CLF were the driving factors for claiming Great Bay was impaired and TN was the cause. (Currier Dep. at 78-79, 97 and Dep. Exh. 34 - internal DES email stating EPA requested the impairment listing change to avoid CLF suit). NOTHING in the record at that time or since then shows that nitrogen had anything to do with the dramatic eelgrass decline in 2006/2007. (Trowbridge Dep. at 370-372). There is no evidence showing nutrients triggered any type of significant water quality change affecting

eelgrass, and, given the rapid decline, this would have been virtually impossible to be a nutrient induced impact. [3]

With regard to the rapid decrease in eelgrass post 2005, it was acknowledged that rainfall and flooding could have been the cause of the decreased eelgrass populations. (Trowbridge Dep. at 381-384, 436). This hydrologic condition greatly influenced system salinity (CDOM and salinity are inversely correlated) and low salinity does have a direct and immediate impact on eelgrass health. (See, www.SeagrassLI.org/ecology/physical_environment/salinity.html) At lower salinity levels (10-20 ppt), eelgrass growth decreases sharply. Id. The attached figures shows how CDOM levels in Great Bay increased during these extreme rainfall years and therefore, salinity levels in the system decreased substantially. Increased CDOM due to the flooding events also cause a major decline in light transmission for Great Bay in the Spring of 2006, which has improved since then. Exh. 2- Changing CDOM Levels in Great Bay 2005-2011 and Exh. 3 - Changing Light Transmission in Great Bay 2004-2008. It should be noted that, the reduced transparency in the system in 2006 was NOT due to an explosion in algal growth. The attached figure shows eelgrass decline as a function of freshwater inflow to the system and the changing transparency condition in Great Bay due to the 2006 floods. Id. This poor level of water clarity occurring in the peak growing season along with lower salinity would have adversely impacted eelgrass growth. Similar storm/flood related eelgrass declines have been reported in other systems. (see, *Managing Seagrasses for Resilience to Climate Change*, Bork, Short, Mcleod and Beer, International Union for Conservation of Nature (2008)) at 18. Multiyear (three year or more) recovery to such natural events have been documented and would be expected in this system also. Id.

Similar to flood impacts documented in other systems, the multi-year depression in eelgrass growth (2006-2008) is most likely attributed to changing conditions related to increased fresh water flows, decreased salinity and poor light transmission occurring in the higher rainfall years and in particular the spring of 2006. (See, Exh. 4 – Changing Great Bay Eelgrass Acreage and Flow; Exh. 5 - Chart of May-July Flows Versus Eelgrass Acreage). Since the extreme rainfall has abated, eelgrass populations have rebounded in both Great Bay and Little Bay for 2010-2011. Id. Therefore, at this point there is no rational basis to conclude

[3] EPA's position that nitrogen was the cause of eelgrass declines rested on claims made by Dr. Short. There is no objective basis for relying on Dr. Short's claims. He testified that he did not conduct studies of Great Bay or the Lower Piscataqua River designed to determine why eelgrass declines had occurred in those areas. (Short Dep. at 16, 20-22, 24-25, 83-85) He also testified that he did not conduct any evaluation of the available water quality data to ascertain whether or not nutrients had triggered any changes in water quality impacting transparency. (Id.) Thus, his "claims" were simply unsupported speculation. He also acknowledged that he did not know why eelgrass populations in Little Bay failed to "rebound" while Great Bay eelgrass populations fully recovered after the 1988 wasting disease event that decimated eelgrass populations in the area. Id. Thus, none of Dr. Short's claims regarding the cause of fluctuating eelgrass populations are objectively demonstrated for the Estuary.

that anything other than natural conditions (in particular floods and extreme rainfall occurring in 2006) has caused the rapid decline in 2006 eelgrass acreage that persisted for three years. A multiyear recovery period would be expected as necessary to allow for pre-flood eelgrass populations to again occur, which is also reflected in the Great Bay/Little Bay eelgrass record. EPA's assertion that this was a nitrogen induced impact has no objective scientific basis for this estuary and no explainable ecological mechanism. Changing eelgrass populations in the Lower Piscataqua River and the Bays is not related to nitrogen impacts but is most likely due to events surrounding the floods occurring in 2006.

4. The Transparency Concern in Great Bay is Misplaced and Unsupported

The proposed nutrient standards are based on a presumed transparency impairment in Great Bay. However, transparency in Great Bay has been consistent and supportive of eelgrass propagation. As previously mentioned, Great Bay transparency was fairly constant from 1990-2005 and 2007-2011. This level of transparency has been sufficient to sustain eelgrass in Great Bay. DES, EPA, and Dr. Fred Short have all agreed that Great Bay is not a transparency limited system because eelgrass populations receive sufficient light during the course of the tidal cycle (Trowbridge Dep. at 177, 211-212, 360-361 and Short Dep. at--- as discussed in numerous emails between DES, EPA and Dr. Short). Moreover, the 2007 transparency study completed by Morrison for Great Bay concluded transparency was sufficient to support eelgrass in Great Bay and Little Bay and therefore other factors must be limiting eelgrass declines in the system. (Trowbridge Dep. at 235-236). In other words, eelgrass populations in Great Bay generally receive ample light at low tides, unless conditions become severe (as in 2006 floods and extreme rainfall). These critical findings were left out of the 2009 Criteria document. Id at 436-437. Because Great Bay transparency is sufficient for eelgrass growth, application of the 2009 Numeric Nutrient Criteria to derive the permit limits is not legally or scientifically defensible.

5. The Current and Historical Water Quality in Great Bay Has Been Sufficient to Support Eelgrass.

The Coalition previously observed that an evaluation of historical data indicate that water quality conditions in the Great Bay in excess of the 2009 Numeric Nutrient Criteria have been conducive and sufficient for eelgrass growth. Eelgrass populations thrived from 1990 through 2005 under the elevated TN conditions and existing transparency conditions documented in Great Bay and Piscataqua River. For example, the database presented by Mr. Trowbridge to EPA in March 2008 confirmed that the average Kd for Great Bay was above 1.0 and TN above 0.42 mg/l prior to 2006 when eelgrass were considered healthy. This proves that a 0.75 Kd, and 0.3 mg/l TN criteria as presented in the 2009 Numeric Nutrient Criteria are not necessary to ensure adequate eelgrass growth in this system.

Deposition testimony has confirmed that the Coalitions position is supported. Mr. Currier indicated that conditions occurring prior to 2004 were sufficient to protect eelgrass resources (Currier Dep. at 69). Mr. Trowbridge also acknowledged the same position through 2005. (Trowbridge Dep. at 356) Mr. Trowbridge also acknowledged that the major regrowth of eelgrass also indicates that existing water quality supports healthy eelgrass propagation. (Trowbridge Dep. at 182-183 240-241) Finally, federally funded research (2008- Morrison) on Great Bay confirmed that (1) existing light conditions were sufficient for eelgrass growth (2) changes in eelgrass populations are not related to transparency and (3) other causes require investigation (Currier, Trowbridge Dep. at 236, 360-361). Existing transparency levels are as good, if not better than the levels present during the Morrison study. (Exh. 3- Showing Kd at Adams Point 2004-2008) Given this testimony, there is no objective basis to assert that existing water quality and nutrient levels are inadequate to support the eelgrass resource or that transparency and nitrogen levels violate narrative criteria.

Epiphytes have been raised as an issue of concern for Great Bay eelgrass. Epiphytes grow on the surface of the eelgrass and attenuate the light reaching the eelgrass. This can hinder eelgrass growth to varying degrees. However, Mr. Trowbridge agreed with Dr. Short's assertion that epiphytes pose negligible risk to Great Bay eelgrass populations (Trowbridge Dep. at 7-11-12 pg. 348-349).

Similarly, macroalgae can overgrow eelgrass beds and prevent eelgrass proliferation. Yet, Mr. Trowbridge did not oppose Dr. Short's findings that current macroalgae growth has not been demonstrated to prevent eelgrass restoration anywhere in Great Bay (Trowbridge Exh. 58; Trowbridge Dep. at 104-105). It should be noted further, that macroalgae in Great Bay grow predominantly on tidal flats that do not support eelgrass. Regardless of macroalgae levels, eelgrass populations in Great Bay rebounded roughly 40% from 2007-2011 Trowbridge Dep. at 156-157, 240-241). Clearly, macroalgae growth has minimal, if any, effect on Great Bay eelgrass and the growth of these plants has not been documented to be causing use impairment. Id.

Thus, available data indicate current and historical water quality conditions support eelgrass growth and that existing nutrient levels do not pose a present threat to eelgrass survival. Therefore, imposing stringent nutrient reduction requirements, as proposed in the draft permits, is unnecessary and unwarranted to support eelgrass growth in Great Bay.

6. The Cause of Eelgrass Decline is Unknown.

EPA and DES have claimed to understand causes of eelgrass decline. Contrary to EPA and DES claims, available data indicate eelgrass decline is not linked to increased TN levels in Great Bay. However, the true cause of eelgrass decline remains unknown. Mr. Phil Trowbridge confirmed that causes of Great Bay eelgrass decline from 2006-2008 are not understood (Trowbridge Dep. at 82-83, 370-372). This is attributable to the fact that no site-

specific research has been completed to evaluate the cause of eelgrass declines anywhere in the Great Bay system (Trowbridge Dep. at 120-125, 135-136, 149-150, 152, 408; Short Dep. at 16, 20-25). Instead, the development of the proposed nutrient criteria relied heavily upon studies of the Chesapeake Bay, a considerably different system than Great Bay. Without understanding the underlying causes of Great Bay eelgrass decline, imposing nutrient criteria is unsupportable.

7. Low DO in Tidal Rivers is Not Demonstrated to be Caused by Algal Growth.

EPA has claimed the low DO in Great Bay tidal rivers is caused by excessive algal growth. The Coalition comments note that the available studies specifically determined that there was no direct relationship between periodic low DO and elevated algal levels in the rivers that were evaluated (i.e., Lamprey and Squamscott) The recent HydroQual report indicated that elevated algal levels exhibit no direct relationship with low DO (Trowbridge Dep. at 31-32). Prior State of the Estuary reports indicated that natural conditions may cause the low DO. Mr. Trowbridge acknowledged several natural conditions contribute to low DO in the tidal rivers, including tidal interchange, stratification, and sediment oxygen demand (Trowbridge at Dep. at 39-46). Mr. Trowbridge also acknowledged that the relative impacts of algal growth versus all other factors influencing low DO have not been assessed. Id. Without such assessments, algal growth cannot and has not been pinpointed as the primary or even a significant cause of low DO in Great Bay tidal rivers. Without such basic information the need for stringent nitrogen reduction cannot be determined. Applying nutrient criteria to limit algal growth as a means to increase DO in Great Bay tidal rivers is scientifically unsupportable at this time, particularly given the data showing that prior apparent increases in inorganic nitrogen levels did not produce a significant change in algal growth in the system.

8. EPA Peer Review and Permit Issuance Failed to Consider the Relevant Scientific Information for Great Bay.

EPA has claimed the peer review conducted for Great Bay was adequate to demonstrate application of stringent nutrient criteria were necessary to protect the Bay's eelgrass resources. However, the Coalition asserted that the peer review failed to consider the relevant scientific information previously developed for Great Bay estuary. The depositions confirmed that critical site-specific information in the possession of DES and EPA was excluded from the 2009 Numeric Nutrient Criteria and therefore, was not made available to the peer reviewers. (Trowbridge Dep. at 436-440) The various DES analyses (discussed earlier) that confirmed (1) TN increases did not cause changes in transparency, algal levels or DO (2) a "cause and effect" relationship between TN and transparency/DO did not exist, (3) Dr. Short's conclusion that Great Bay is not a transparency-limited system and (4) the

findings of the Morrison report concluding existing conditions (transparency/TN) did not limit eelgrass populations were all excluded from the technical information presented in the 2009 Numeric Nutrient Criteria support documents "weight of evidence" analysis. Consequently, the peer reviewers had no basis to know that the assumptions underlying the development of the criteria, were actually proven to be unsupported or false by the available site-specific data. Moreover, the effect of the extreme weather on eelgrass populations was never presented, though it was acknowledged that it could have caused the eelgrass losses. (Trowbridge Dep. at 381-385, 436) Excluding such essential and relevant information, rendered the peer review a fatally flawed and biased process. This information confirms that the concerns identified in the Coalition's May 14, 2012 Science Misconduct letter to EPA Headquarters were well supported.

9. Extreme Rainfall Skewed Nitrogen Impacts Analysis.

As part of the Coalition's comments, it was noted that the time period used to evaluate the degree of nutrients entering the system was atypical and not reflective of the expected range of nitrogen loadings. In particular, EPA was relying on a DES 2010 draft WLA Report that considered system loadings from the 2006-2008. The depositions confirmed that this was an extreme rainfall period (Trowbridge Dep. at 436) and more recent water quality data (released by PREP) confirmed that nutrient levels have declined by approximately 40% in the past three years. (Exh. 1 showing 1970- 2011 inorganic and total nutrient levels at Adams Point) As noted previously, this change in weather patterns has been accompanied by eelgrass regrowth in Little Bay and Great Bay. The external loading of nitrogen has dropped substantially based on the most recent PREP analysis from 1560 tons per year to about 1200 tons per year (see, Draft 2012 State of Estuary report).

State criteria do not have to be met under extreme conditions akin to once in 100 year events. Those would be considered extreme natural disturbances. Based on this information, *assuming arguendo*, that nutrient reductions are needed, the degree of nutrient reduction required to attain the 2009 Criteria is far less than originally believed by EPA. In fact, it appears that the existing TN level in Great Bay, is actually at or below the level intended to regulate macroalgae growth ~ 0.37 mg/l TN. Since Great Bay does not have a phytoplankton/transparency issue – it is only this level of water quality that could be considered needed to protect eelgrass uses at this time. Based on this latest information on nutrient levels in the system, EPA necessarily must reconsider its claim that limits of technology TN reductions to 3 mg/l TN is required to protect the resources of Great Bay.

10. Draft Criteria Were Misapplied (7/Q/10-mixing zone)

The Coalition comments noted that EPA had misapplied the 2009 Numeric Nutrient Criteria by imposing restrictive mixing zones and by applying the criteria under rare low flow conditions. The depositions confirmed both of these errors (See Trowbridge Dep. at 441-445; Currier Dep. at 103). In particular, the application of the numeric criteria under short-term, rare low flow conditions and at the end of a reduced mixing zone was completely at odds with the development of the criteria, which were based on long- term, median (multiyear) conditions in ambient exposure levels. Id. Therefore, the Region misapplied the criteria and the calculations that were used to assess the degree of impact from the discharge, were all in error (assuming that the nutrients being discharged were actually causing demonstrable adverse impacts).

11. Improper Impairment List Based on CLF Influence and Further Verification of Science Misconduct in the Development of the Permit Requirements

The Coalition had raised concerns regarding the claims that Great Bay was eelgrass impaired due to nutrients and why the impairment listing changed prior to the opportunity for the public to formally comment on the legal and technical basis of the draft 2009 Numeric Nutrient Criteria. Mr. Currier acknowledged that the 2009 Criteria changed and set new water quality requirements for Great Bay. (Currier Dep. at 100-101, 140). Absent the application of the 2009 Criteria, the waters would not have been designated nutrient impaired. DES acknowledged that had planned to formally adopt the criteria prior to use in designating waters impaired or in setting permit limitations. (Currier Dep. at 143, 148-149). Under deposition, it was revealed that (1) EPA told DES to call the numeric criteria "translators" and thereby avoid the criteria adoption/approval process and (2) EPA pushed DES to declare Great Bay and the estuary nutrient impaired, because it wanted to avoid a lawsuit with CLF. (Currier Dep. at 78-79, 108-110). Both of these actions were highly inappropriate and demonstrate that EPA has been acting improperly in promoting nutrient reduction for Great Bay, in opposition to the requirements of the Act.

Impairment designations are required to be based on objective data, not avoidance of lawsuits. 40 CFR 130.6. The objective information presented to EPA at that time by DES, was that there was no cultural eutrophication and there was no nutrient induced transparency problem occurring in Great Bay. EPA was aware that the numeric nutrient criteria required adoption to conform to CWA requirements; however, EPA informed DES that it should violate the law by simply calling the numeric criteria a "narrative translator." This was a gross violation of the Coalition community's due process rights for public participation in criteria adoption as well as mandatory provisions of the Act (Section 101(e) and 303(c)). EPA needs to withdraw these permits promptly and request that DES begin the standards

adoption process if it wishes to use these criteria to declare waters impaired and set permit requirements.

Based on the above supplemental comments it is requested that the proposed permits for Exeter, Newmarket and Dover be withdrawn.

ATTACHMENTS

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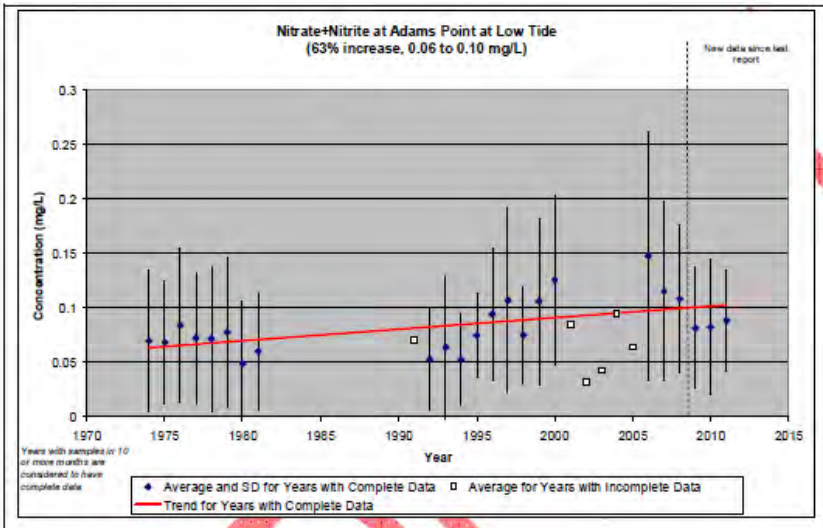

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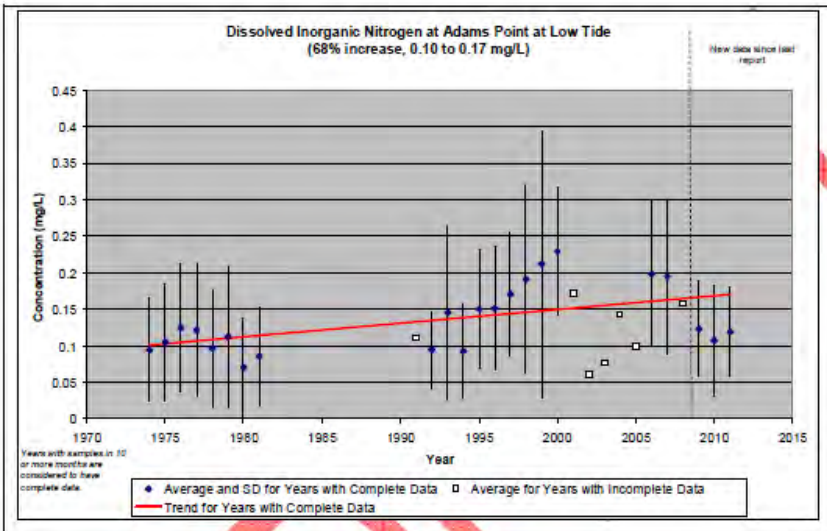

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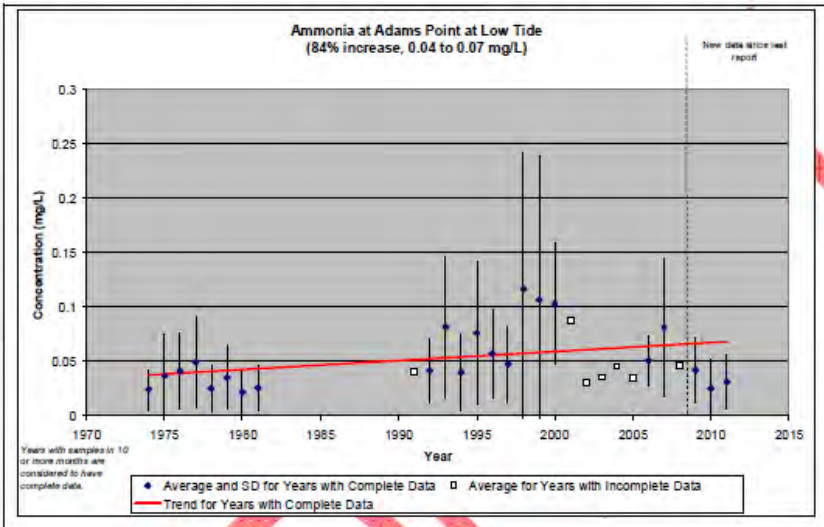

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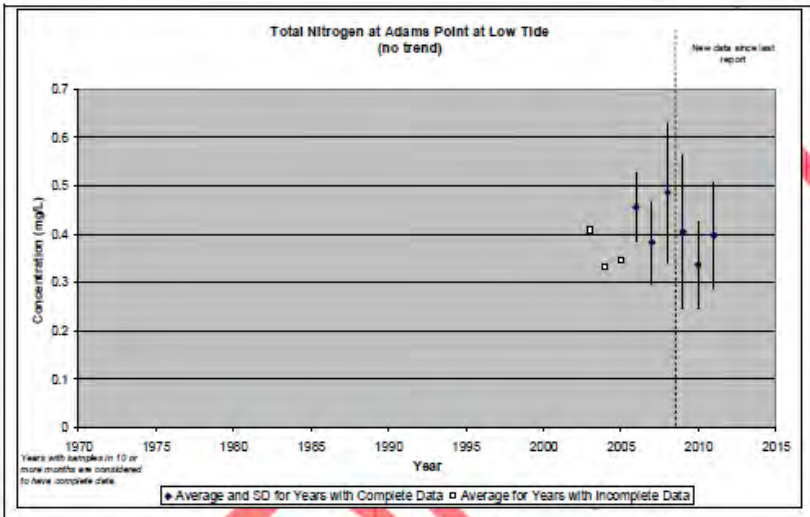

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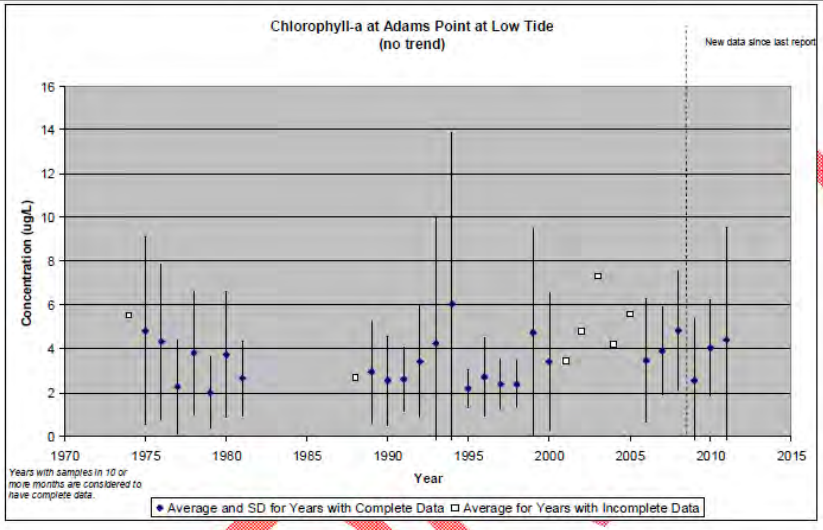

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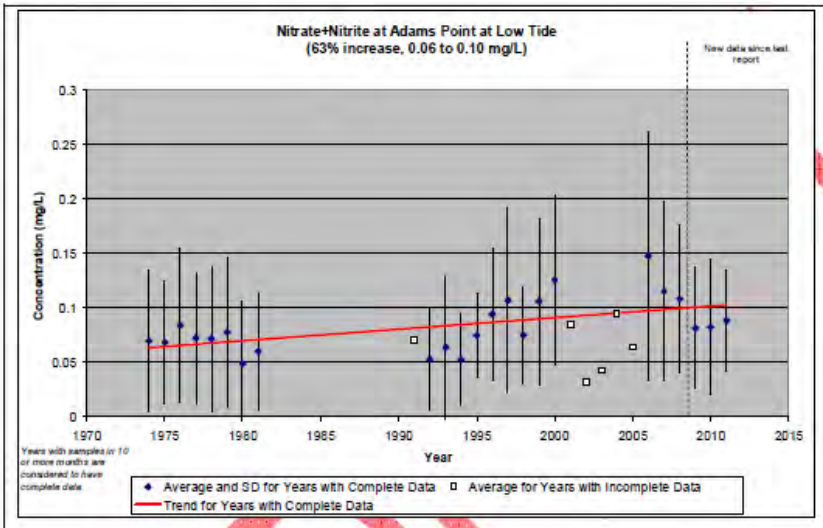

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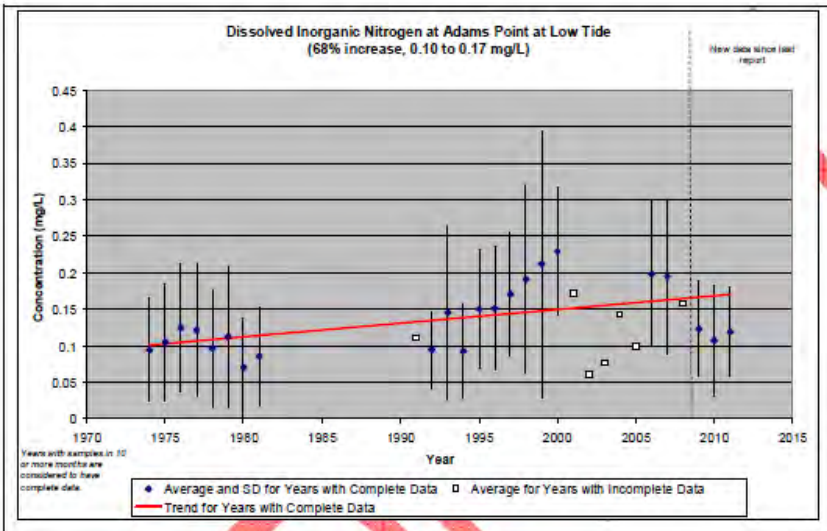

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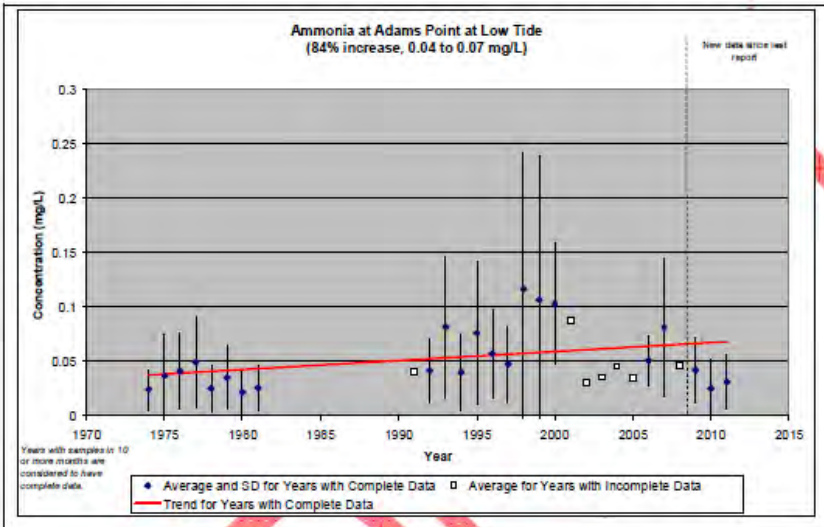

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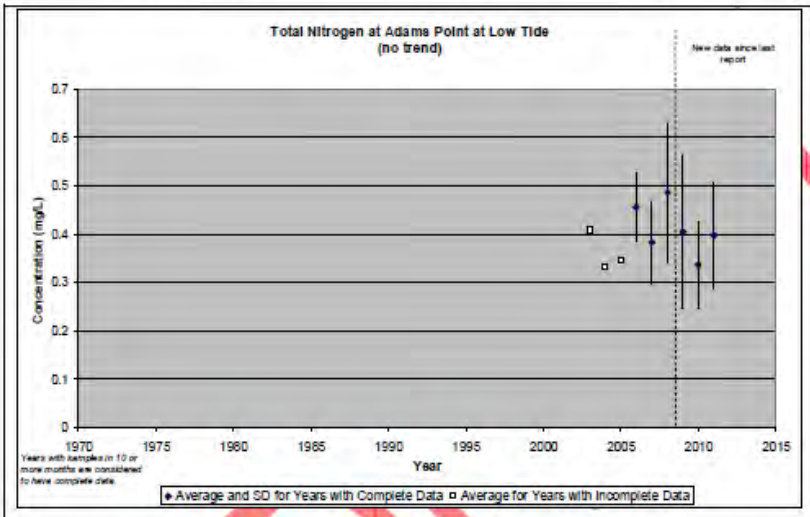

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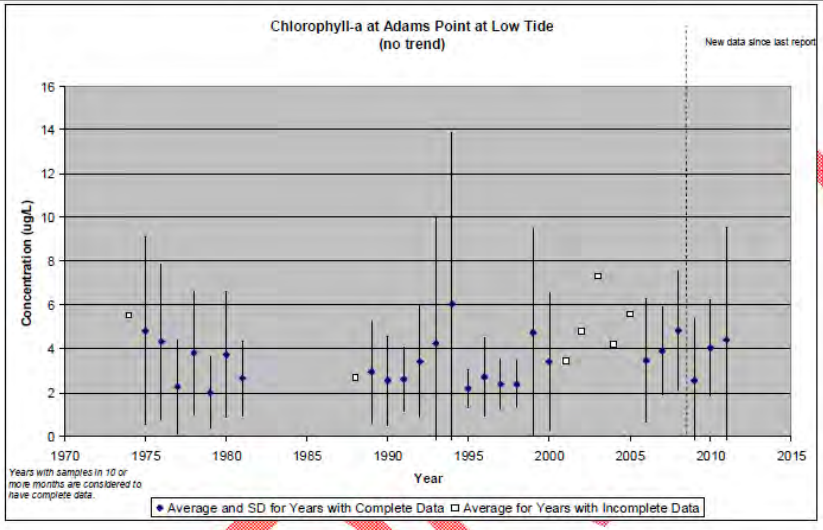

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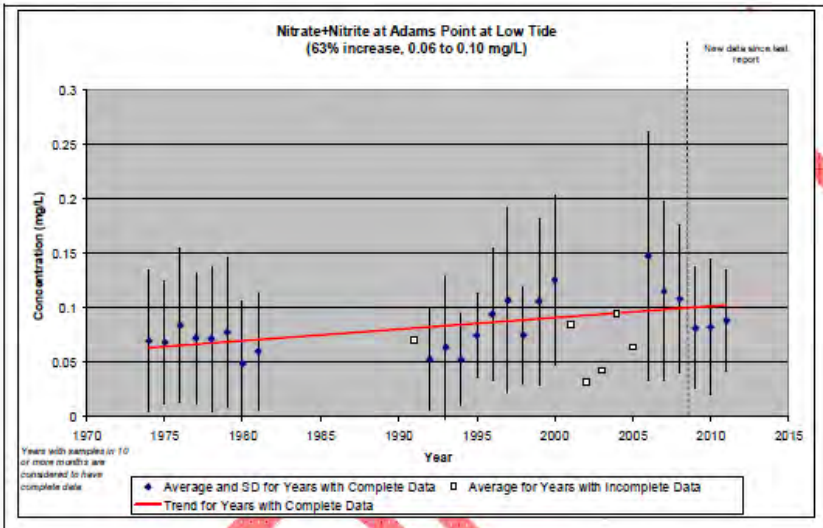

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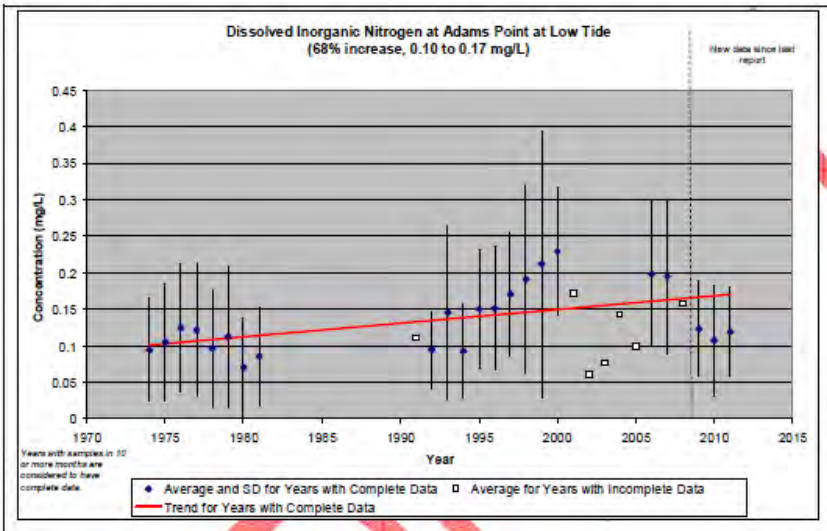

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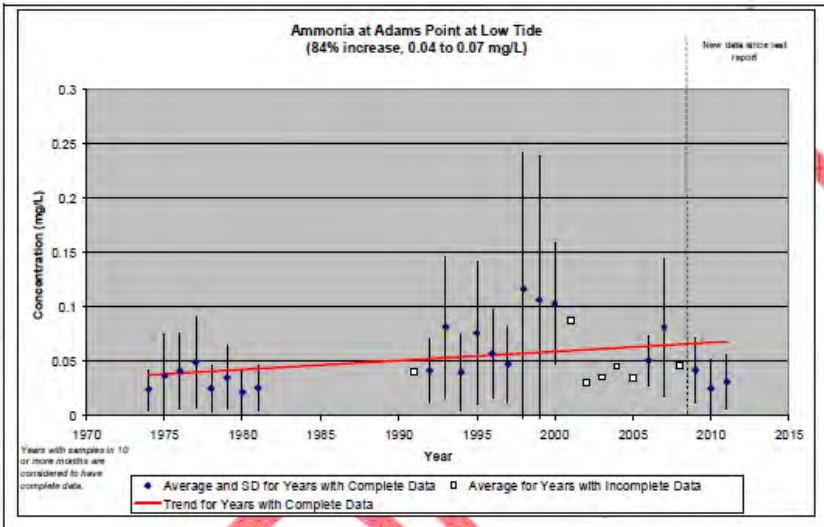

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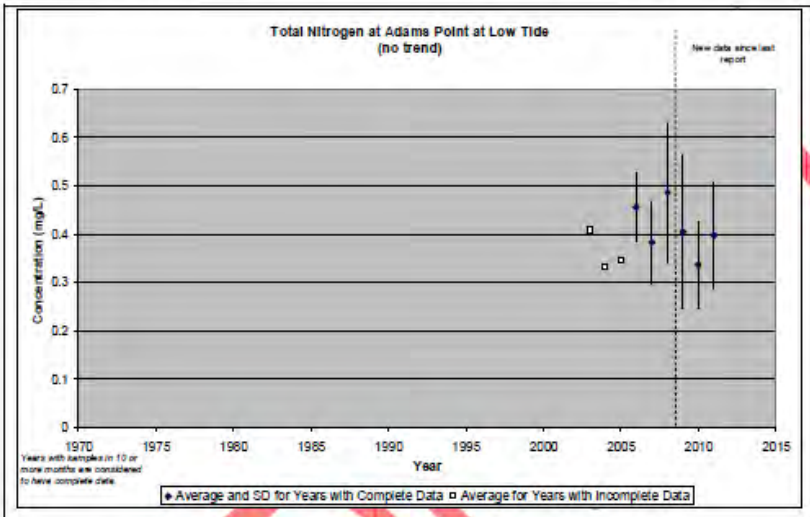

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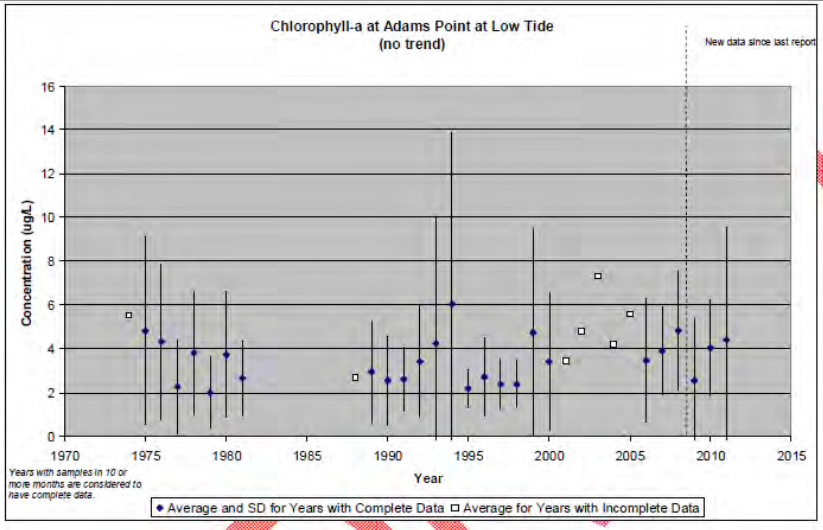

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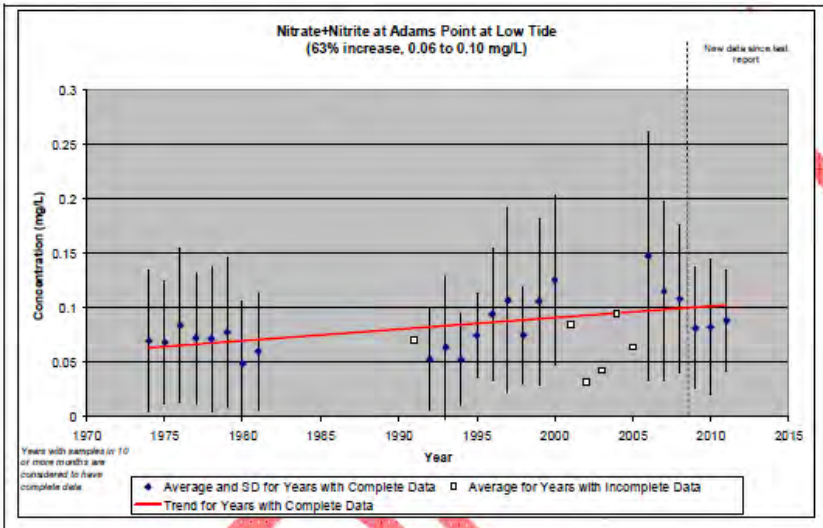

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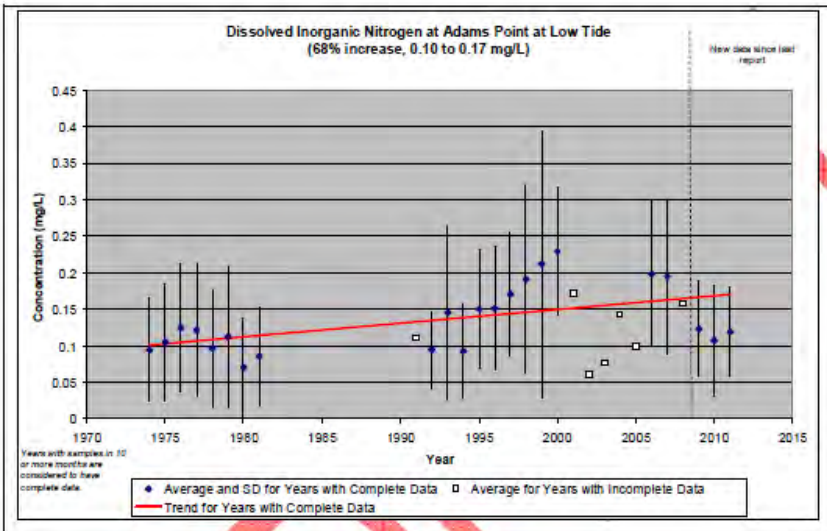

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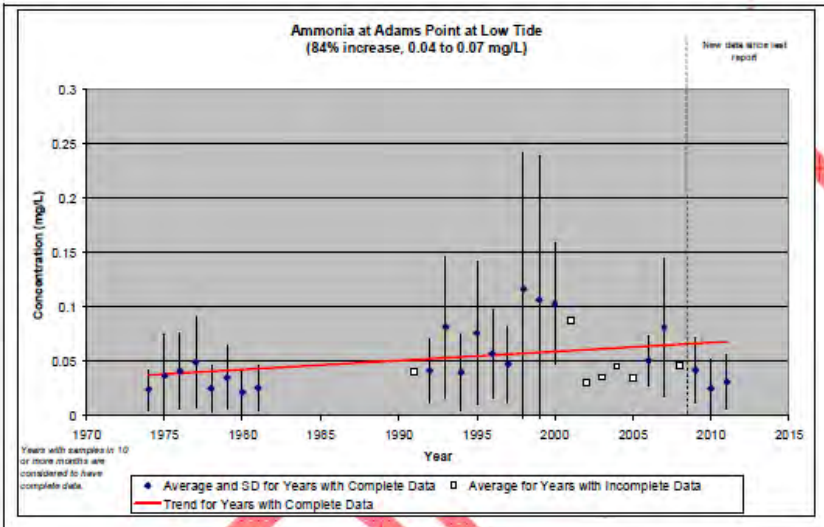

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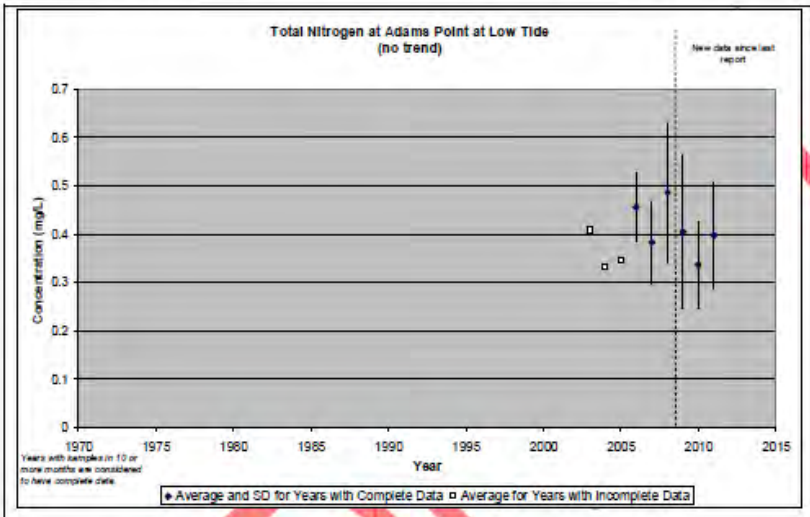

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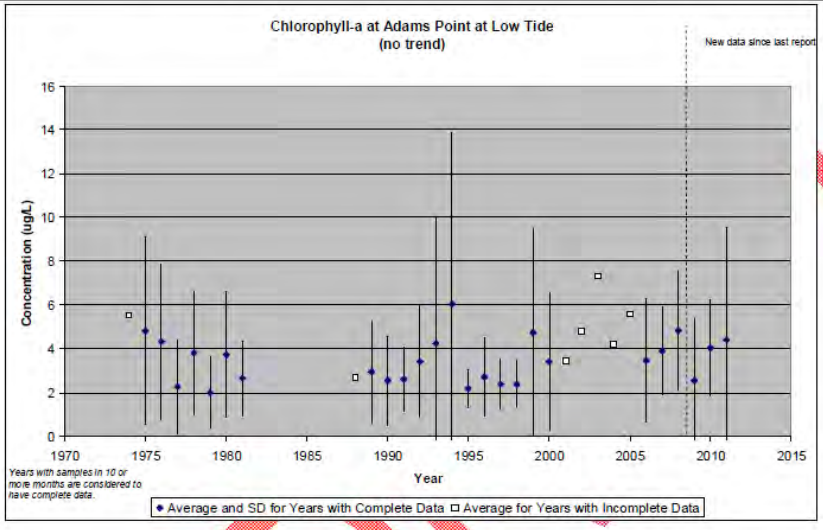

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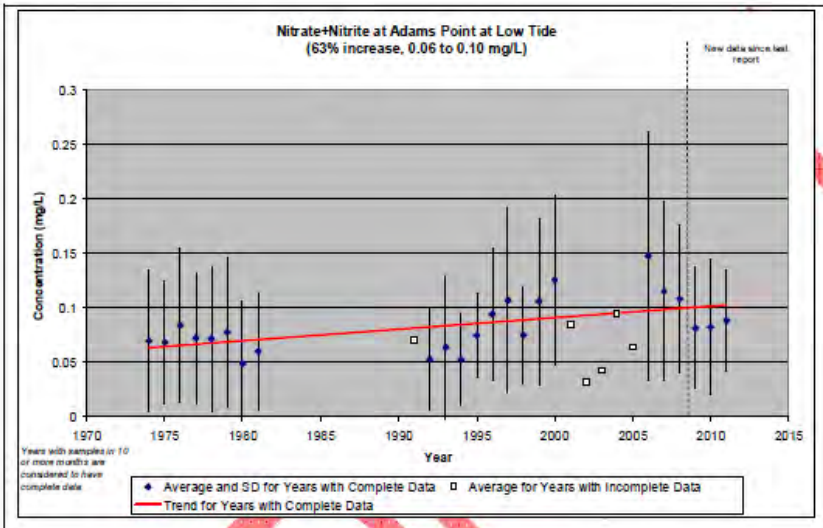

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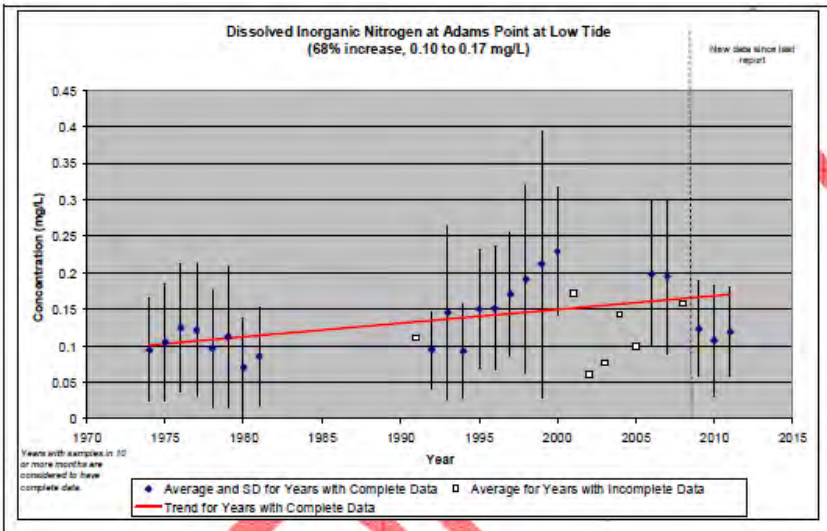

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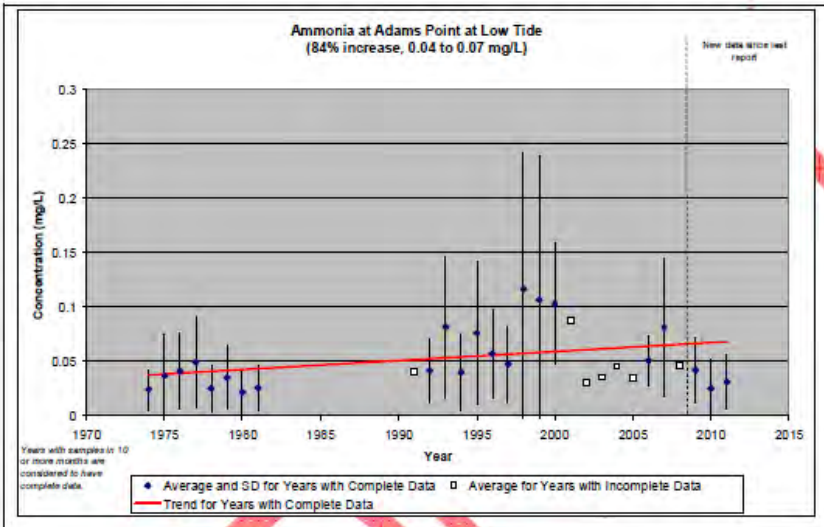

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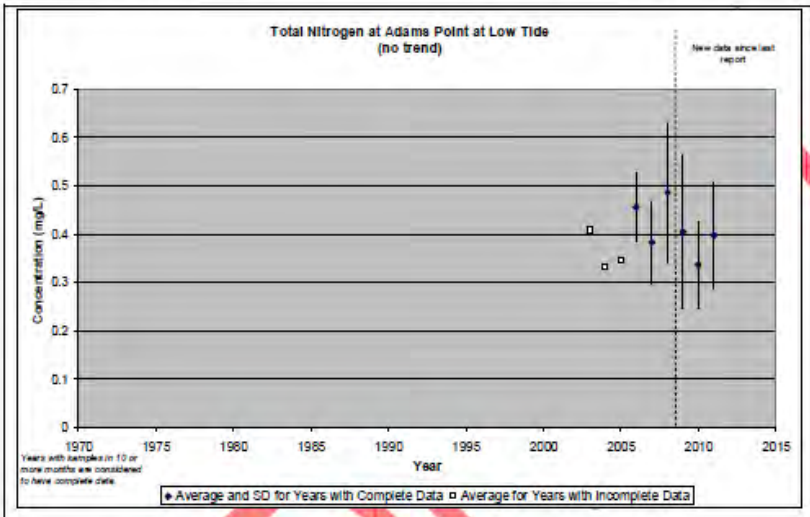

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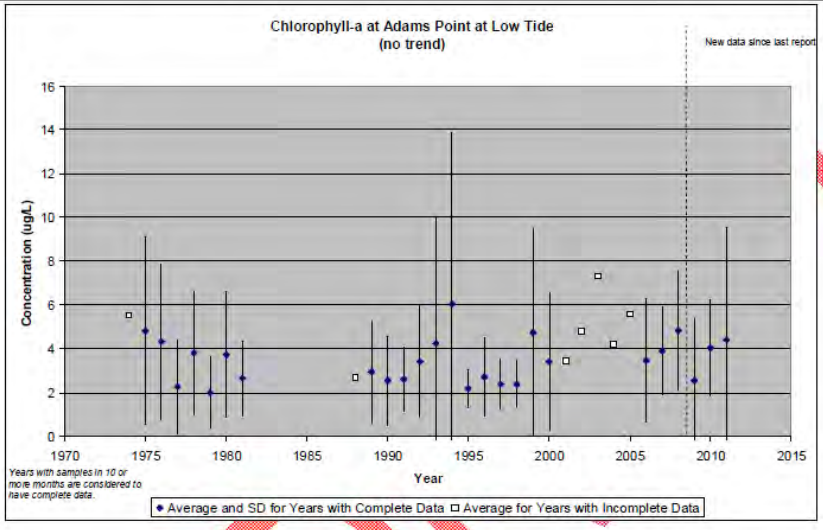

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HALL & ASSOCIATES

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1620 I Street, NW
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Telephone: (202) 463-1166 Web: http://www.hall-associates.com Fax: (202) 463-4207

Reply to E-mail:
jhall@hall-associates.com

March 1, 2013

Via Electronic Filing

U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board 1103M
1200 Pennsylvania Avenue, N.W.
East Building
Washington, D.C. 20460-0001

Re: Town of Newmarket Wastewater Treatment Plant
Permit Number: NH0100196
Appeal Number: NPDES 12-05

Dear Ms. Durr,

Please find attached the Petitioners' Reply to EPA Region's Memorandum in Opposition to the Petition for Review and accompanying Certificate of Service regarding NPDES Appeal No. 12-05.

Sincerely,

John C. Hall
1620 I St., N.W.
Suite 701
Washington, D.C. 20006
Tel: (202) 463-1166
Fax: (202) 463-4207
jhall@hall-associates.com

BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re:	)	
Town of Newmarket	)	
	)	NPDES APPEAL No. 12-05
NPDES Permit No. NH0100196	)	
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REPLY TO EPA REGION 1'S MEMORANDUM IN OPPOSITION TO THE PETITION FOR REVIEW

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Counsel for Petitioner Great Bay Municipal Coalition

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OTHER AUTHORITIES

I. Introduction

Though hundreds of pages of analysis have been filed by both parties, the resolution of this case is a simple matter regarding the answers to a few questions on whether nutrients are actually documented to be causing narrative criteria violations in the Great Bay Estuary, whether the peer review received all relevant analyses and whether EPA has misapplied 40 C.F.R. § 122.44(d). The Coalition provided extensive documentation (including sworn testimony of the key New Hampshire Department of Environmental Services ("DES") officials) confirming that (1) there is no factual or objective scientific basis to find that nutrients are causing narrative criteria violations (*i.e.*, cultural eutrophication) related to eelgrass impairment in this system, (2) EPA/DES skewed the administrative record ("AR") to support its conclusions, and (3) the 2009 criteria document is not scientifically defensible because its methodology is fundamentally flawed. EPA's response, though long, never actually refutes any of the key documents or sworn testimony of State officials, with competent "evidence", though it now claims such information was "considered". Resp. Sec. V.B.2. Instead, it is replete with unsupported conclusory statements, rather than documentation that narrative impairments exist or are likely to exist.[1] Thus, EPA has committed clear factual and legal error in issuing this permit.

[1] The Region, in a number of locations, also indicated that arguments were not "preserved for review" and therefore, may not be considered by the Board. Resp. at 41, 66, 71, 79, 87, 89. The Region's contentions are misplaced as follows: (1) there is no requirement to specifically identify the pages of original or disputed comments in the brief; (2) *Daubert* was simply a case law citation, the issue of scientific validity has been repeatedly raised (AR C.2 at 17, 18); (3) the ability of TN reduction to achieve either DO or transparency criteria was raised repeatedly (AR C.2 at 2,3,5,8,9,12,15); (4) the issue of basing the 3 mg/l limit on the need for NPS reduction was raised at EPA Headquarters after the Region changed its rationale for imposing the limit (AR C.2 at 10, 11; AR H.61); and (5) the inclusions of a specific permit provision to implement this mandate only occurred when the final permit was issued. AR H.61 at 1; *see also* AR.C.2 Exh. 8-10, 14-23. EPA's other assertions of non-preserved issued in its Appendix A are equally misplaced. The Region makes repeated (almost pro forma) claims that over fifty issues (actually supporting points in arguments) were not preserved in Appendix A. Because these arguments are not presented in the Agency's "main brief" they do not require a response. However, the Region's claims that we should have known EPA was hiding documents from the peer review only support Petitioners' case that such review was fundamentally flawed. *See* Resp. App. A (numerous responses list the basis for denying review as "not preserved.").

EPA now boldly asserts that it does not need to base its narrative criteria compliance decisions on system-specific, objective scientific information (Resp. at 4) or any type of "cause and effect" demonstration (Resp. at 3-4, 40-45) to claim (1) the discharger of nutrients "caused" a narrative criteria violation, (2) that meeting the chosen criteria will be "sufficient" to remedy the alleged violation or (3) that the selected TN limitation is "necessary" to attain narrative criteria compliance. Each of these regulatory requirements are, obviously, science-based determinations that require an objective analysis, reflecting the actual data in the system, to ensure the proper requirements have been set. *See Upper Blackstone Water Pollution Abatement Dist. v. Envtl. Prot. Agency*, 690 F.3d 9, 26-27 (1st Cir. 2012) (affirming EPA's decision because the model assumptions "'corresponds to what is actually occurring in the Providence/Seekonk River system.'") [hereinafter *Upper Blackstone*]. Decades of jurisprudence, the state rule at issue, and EPA's own guidance have repeatedly stated that "cause and effect" demonstrations are necessary to regulate under the Act.[2] EPA has no authority to presume narrative criteria violations exist or impose water quality-based permit requirements that are not demonstrated necessary to ensure standards attainment.[3] Consequently, as EPA admits it did not make this causal demonstration (Resp. at 22), this petition for review should be granted.

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[2] The final SAB Report underscored the need for science-based "cause and effect" demonstrations when regulating nutrients: "[T]he final document should clearly state that statistical associations may not be biologically relevant and *do not prove cause and effect*." AR M.23 at 2. "Without a mechanistic understanding and a *clear causative link* between nutrient levels and impairment, there is no assurance that managing for particular nutrient levels will lead to the desired outcome." *Id.* at 4; For criteria that meet EPA's stated goal of "protecting against environmental degradation by nutrients," the underlying *causal models* must be correct." *Id.* at 37 (emphasis added). EPA's claim that the 2010 Stressor-Response guidance obviated this requirement is incorrect and unsupported. Resp. at 60.

[3] *Nat'l Metal Finishers Ass'n v. Envtl. Prot. Agency*, 719 F.2d 624, 640 (3rd Cir. 1983) (holding there is no CWA liability without causation). Mr. Trowbridge concurred that a narrative criteria violation "only occurs if nutrients are causing some demonstrated adverse effect." AR D.4.i.4. at 326 ln 4-8.

II. Key Undisputed Factual Points Governing the Boards Decision[4]

Petitioner's brief extensively chronicled the events leading up to issuance of the Newmarket permit. Br. Sec. II. EPA's response did not dispute the vast majority of these facts in its response with references to relevant scientific data or analyses.[5] The most salient (undisputed) record information confirming EPA's actions are clear error follows.

1. EPA Plainly Misapplied the State Narrative Criteria[6]

EPA claims narrative criteria violations may be demonstrated by applying a selected numeric value to the receiving water. Resp. at 8. However, narrative criteria, unlike numeric criteria, define a condition to be prevented, not an instream pollutant concentration. In this case, the "condition" regulated via the narrative standard is "cultural eutrophication." Cultural eutrophication is defined as "excessive plant growth" that "result in" (*i.e.*, causes) an adverse impact on some important component of the aquatic ecosystem. Resp. at 10. Eelgrass declines and low dissolved oxygen ("DO") may be caused by both natural and man-made influences unrelated to "cultural eutrophication." If eelgrass declines are due to natural factors, such as floods, poor transparency due to "color" entering the system, turbidity due to the high tidal exchange or low DO due to wetland influences, a narrative criteria violations has not occurred nor is there evidence of "cultural eutrophication." Resp. at 11; AR D.4.i.1 at 87 ln.7-12. Therefore, to trigger the imposition of more restrictive nitrogen limits under the narrative

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[4] The key admissions from the deposition testimony were presented to EPA on numerous occasions. Pet. Exh. 15 was the most detailed listing of the admissions and citations to the relevant pages. Prior to its response, EPA never indicated any confusion or inability to discern the relevant deposition materials. *See* Resp. Appendix B at 2-3.

[5] *See Am. Registry of Radiologic Technologists v. Bennett*, 655 F. Supp. 2d 944, 946 n.2 (D. Minn. 2009) ("It is well established that a party concedes an issue by failing to address it in an opposing brief."); *Hopkins v. Women's Div., Bd. of Global Ministries*, 238 F.Supp.2d 174, 179 (D.D.C. 2002) ("It is well understood in this Circuit that when a plaintiff files an opposition to a motion to dismiss addressing only certain arguments raised by the defendant, a court may treat those arguments that the plaintiff failed to address as conceded") (*citing FDIC v. Bender*, 326 U.S. App. D.C. 390, 127 F.3d 58, 67-68 (D.C. Cir. 1997); *Day v. D.C. Dep't of Consumer & Regulatory Affairs*, 191 F.Supp.2d 154, 159 (D.D.C. 2002) ("If a party fails to counter an argument that the opposing party makes in a motion, the court may treat the argument as conceded).

[6] This argument is also related to EPA's misapplication of 40 C.F.R. § 122.44(d), *infra* at 22.

criteria, there must be a demonstration that nitrogen caused "cultural eutrophication" and not one of the other dozen non-nutrient factors that can create the same conditions.[7] There is no such analysis in the record. *Moreover, if there is one fact that is irrefutable at this point, it is that nutrient increases never caused any change in algal growth in the system impacting either water column transparency or DO.* On this basis alone, EPA's decision is clear error, as Mr. Currier observed: [8]

> **A:** ...[T]his rule basically applies to cultural eutrophication, and the end point is the excessive plant growth. **Q:** ...Suppose I had nitrogen or phosphorus discharge into the water body and it didn't cause a change in plant growth. Would that nitrogen or phosphorus be considered in violation of this provision in any event? **A.** No. (AR D.4.i.1 at 19 ln 4-13).

2. Great Bay Information Plainly Contradicts EPA's Impairment Assumptions

The factual/scientific points raised by the Coalition in objection to EPA's action (and unrefuted by EPA with credible evidence, *supra* note 5, are extremely elementary. Br. at 11, 19-20. First, there are no data or analyses, *for this system,* showing that nutrients are responsible for eelgrass declines anywhere in this system. The only available analysis confirms nutrients were *not* responsible for the dramatic system wide eelgrass decline that occurred in 2006 after the floods. *See, e.g.,* AR D.2.i.1-2, D.1.i.3-4, K.11, D.4.i.4 at 371 ln 16 – 372 ln 10. Second, changing nutrient levels never caused any changes in water column transparency or algal growth

[7] EPA may not regulate based on "probabilistic evidence" or "correlations" without proving causation. *Tex Tin Corp. v. Envtl. Prot. Agency*, 992 F. 2d 353, 356 (D.C. Cir. 1993). Likewise, EPA may not claim that nitrogen is the cause of impairment in Great Bay because it has caused impairment in other waters.

[8] EPA's Response claimed nutrients did cause changing algal/transparency levels over time. Resp. at 27. No basis for this position was stated and it was directly refuted by the PREP reports, DES under oath, and the 2012 Burack letter. AR H.43 ("it is correct that there have been no clear trends in chlorophyll-a...measured in Great Bay over the full period of record from 1974 to 2011"). Unsupported claims of counsel are not evidence and must be ignored by the Board. *Jin Chun Lin v. Holder,* 430 Fed. Appx. 54, 56 (2d Cir. 2011) (*citing INS v. Pinpathya*, 464 U.S. 183, 188 n.6 (1984) (finding "counsel's unsupported assertions in a brief do not constitute evidence").

(phytoplankton) or low DO anywhere in the system.[9] AR D.2.i.1-2, D.1.i.3-4, D.4.i.3. at 124 ln 22 – 125 ln 1. Without this change, nutrients cannot possibly be the cause of changing eelgrass populations via transparency impacts and low DO. Third, the transparency in the tidal rivers is naturally low and not materially affected by the algal growth present in those waters. AR K.11; D.2.i.2.; D.4.i.4 at 427 ln 6- 428 ln 2, 383 ln 16 ("you can't control color …or turbidity by controlling nitrogen."). Therefore, regulating nutrients levels is immaterial to improving transparency in this area and could not be causing a narrative violation. Fourth, Great Bay itself (where over 90% of all eelgrass exist in this system) is not even a transparency limited system because plants receive sufficient light at low tide. AR H.38, C.2 Exh. 21, D.4.i.3 at 177 ln 8-18. Speculation that TN reduction "can only help" to better transparency in the bay (Resp. at 84) is irrelevant to whether or not a narrative violation presently exists. AR D.4.i.4 at 362 ln 11-14. Fifth, tidal river studies did not show that low DO was due to excessive algal growth. AR K.6-9, 20; *infra* note 25. Sixth, the author of the 2009 Criteria document and his supervisor, admitted under oath that these facts were true and that the 2009 Criteria are not intended to implement the existing narrative standard.[10] EPA's decision to regulate TN given these undisputed facts and use the 2009 Criteria contrary to the author's admissions is *per se* arbitrary and capricious.[11]

3. Peer Review Bias Was Confirmed

Petitioners argued that EPA's peer review was biased and fundamentally flawed because the key information showing nutrients had never caused the alleged changes in water column

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[9] Such a difference is demonstrated by looking at algal and nutrient concentrations at a specific location over time. What the DES analysis demonstrated was that different DO and transparency levels exist in different parts of the system, not that nutrients and algal growth caused the differences to occur. *See infra* at 16; Chapra Affidavit.

[10] AR D.4.i.1 at 80 ln 14-23, D.4.i.4 at 323 ln 22 – 333 ln 8.

[11] *Texas Oil & Gas Ass'n v. Envtl. Prot. Agency*, 161 F.3d 923, 935 (5th Cir. 1998) ("When an agency adopts a regulation based on a study [that is] not designed for the purpose and is limited or criticized by its authors on points essential to the use sought to be made of it the administrative action is arbitrary and capricious and a clear error in judgment.") (*quoting Humana of Aurora, Inc. v. Heckler*, 753 F.2d 1579, 1583 (10th Cir. 1985), *cert. denied*, 474 U.S. 863 (1985)).

transparency and DO were excluded from the review. Br. Sec. V.J. Since the reviewers did not know that the key graphs did not reflect actual impacts, they had no reason to doubt the validity of the analysis.[12] In response, EPA only claimed that the peer review had the public comments submitted as part of developing the 2009 Criteria, not the relevant DES or EPA statements/analyses (only revealed through the state court action) confirming the 2009 Criteria did not reflect what was actually occurring in the system. Resp. at 24. That response fails to address/refute Petitioner's objections. Moreover, EPA failed to refute several other important regulatory facts raised, including: (1) It was EPA that insisted DES continue to develop the 2009 criteria, despite knowing that the "conceptual model" (transparency decrease due to nutrient induced excessive algal growth) was not applicable to this system (Br. at 7, AR D.4.i.4 at 198 ln 9-17); (2) DES amended the 2008 impairment list to declare Great Bay nutrient impaired using the unadopted numeric nutrient criteria at EPA's request to resolve a Conservation Law Foundation ("CLF") "litigation threat" (Br. at 21); (3) EPA refused to allow the Coalition to participated in the peer review to raise new issues. Br. at 10, 87.

These final points underscore the bad faith approach EPA undertook in seeking to impose nutrient limits, while hiding the fact that nutrients had never caused the impacts the 2009 criteria were claimed "necessary" to remedy.[13] Skewing the record to create an impression that is plainly false is a serious violation of Administrative Procedures Act responsibilities. Where it is apparent that an agency failed "to disclose the substance of other relevant information that has been present to it..." the reviewing court ". . . must treat the agency's justification as a fictional

[12] For this same reason, Dr. Valiela's analyses are just speculative. EPA notes that he qualifies this "expert opinion" based on "what I have seen". Resp. at 50. His report provides no indication that he saw, or considered, any of the relevant historical assessments performed by DES verifying that transparency is not the issue in this system. His entire report refers to what has occurred in other systems, not this system. Br. at 57, n.32.

[13] Mr. Trowbridge testified the 2009 criteria were never demonstrated to be "necessary" for the Great Bay Estuary. AR D.4.i.3 at 239 ln3-10, D.4.i.4 at 364 ln 4-13.

account of the actual decisionmaking process and must perforce find its actions arbitrary." *Home Box Office, Inc. v. FCC*, 567 F.2d 9, 54-55 (D.C. Cir. 1977).[14] This case requires the same result.

4. Facts Confirmed Under Deposition Showing Clear Error

EPA claims it considered the depositions but decided to not alter its position since there was no information contained therein indicating regulatory error.[15] As discussed below, EPA's response is not credible[16] and not consistent with the facts revealed under deposition.[17]

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[14] EPA's primary defense for these serious misdeeds is twofold: (1) ignore the depositions because the lawsuit that led to the depositions should have been filed earlier (Resp. at App. B) and (2) the issues are not preserved because Petitioners should have known that EPA left critical information out of the record. Resp. at App. A, *passim*. Board should reject them as harshly as the 10th Circuit and the U.S. Supreme Court did in *Humana of Aurora, Inc. v. Heckler, supra* note 11 and *Bowen v. New York*, 476 U.S. 467 (1986), respectively.

[15] "The body of evidence used by EPA included technical guidance for estuaries, peer-reviewed scientific literature, analyses from other states and, of course, the 2009 Criteria docment, whose utility and continuing relevance was not undermined either by deposition testimony, nor the 2012 Burack Letter, or the draft 2012 PREP Report, as erroneously claimed at *Pet.* 42-45." Resp. at 46. Absent some indication of how this critical information was considered and rejected, this is simply a "post hoc rationalization." *See Natural Res. Def. Council v. Army Corps. of Eng'rs*, 457 F.Supp2d 198, 227 (S.D.N.Y 2006) ("There is a fine line between legitimate responses to public comment and post-hoc rationalization designed to justify a decision that was already been made.").

[16] The Region admits that it must provide written response to "timely and significant" issues and to reopen there must be a "new" and "substantial" issue. Resp. at 79. Admissions by the author of the 2009 Criteria that (1) crucial information showing that TN had not caused changes in transparency and algal growth were excluded from the weight-of-evidence analysis and (2) that the criteria did not implement the state's narrative standard certainly should meet this test. *See Home Box Office*, *supra* at 7 and *Texas Oil & Gas Ass'n, supra* note 11.

[17] EPA's argument that the DES deposition testimony fails to meet the procedural threshold requirement for consideration because it was "reasonably available and ascertainable during the public comment period" (Resp. Appx. B, at 1), is baseless for several reasons. First, the Coalition sought such documentation from EPA under Freedom of Information Act ("FOIA") requests, and the key records disclosing EPA knew that transparency and algal levels had not changed were not disclosed. Nor, was there any indication of the request to alter the impairment listings based on a threatened CLF suit. Though the submitted FOIA requests precisely sought the type of information and documents the depositions revealed (AR I), such information never appeared. EPA's decision to improperly withhold that information does not inure to its benefit. *See Bowen v. New York*, 476 U.S. at 481 ("Where the government's secretive conduct prevents plaintiffs from knowing of a violation of rights, statutes of limitations have been tolled until such time as plaintiffs had a reasonable opportunity to learn the facts concerning the cause of action."). Second, the unsupported claim that the Coalition should have filed an earlier lawsuit in order to gain access to relevant facts on EPA/DES decision making is frivolous. Resp. App. B at 1-2, *see* Peschel Affidavit. Petitioners detailed the events leading up to the filing of the suit. Br at 3-16. Through late December 2011, it appeared that DES and the Coalition would be able to resolve their disagreements without litigation, per the MOA. *See also,* Br. At 16, Email from T. Diers, DES, to J.Hall (Dec. 9, 2009) (the Coalition in December 2011 was still awaiting a response from DES on whether the 2009 Criteria would apply in the tidal rivers, contrary to the MOA.), Gallagher Affidavit. When it became clear that DES, at EPA's assistance, refused to back down on its application of the 2009 Criteria in the tidal rivers, the Coalition filed its lawsuit roughly three months later, an entirely reasonable time given the authorizations and resource commitment such an endeavor requires. As EPA may not benefit from its actions that shield the regulated community from access to relevant documents and the lawsuit filing

a. What caused DES to identify the system as eelgrass impaired? ***Answer: The sharp turndown in eelgrass populations occurring in 2006, following major flooding and the wettest rainfall year on record.***

As demonstrated by the record, Dr. Short (UNH Seagrass Ecology Group) had been monitoring eelgrass populations in Great Bay and the Lower Piscataqua River/harbor area for decades. AR K.17 at 20-11. He acknowledged that his studies were not intended to ascertain the factors causing eelgrass populations to fluctuate in the system, only to document how those populations fluctuated.[18] AR D.4.i.2 at 16 ln 18-22. Through 2005, the consensus was that eelgrass populations in Great Bay and the Lower Piscataqua River were healthy (though Little Bay eelgrass populations had never fully recovered from the 1988 wasting disease that decimated eelgrass throughout the system). AR D.4.i.4 at 354 ln 2 – 355 ln 14, K.17 at 20-21. PREP also noted that apparently increasing nitrogen levels had occurred in the system prior to this time, but the system was not exhibiting increased algal growth.[19] Mr. Trowbridge confirmed that increasing nitrogen (measured as dissolved inorganic nitrogen at Adams Point) did not result in any observable plant growth increases or reduced transparency:

> **Q.** So the only available data you have shows water clarity didn't change in the Piscataqua River and in Great Bay, right? **A.** Right. *** **Q.** And where do you have data, in Great Bay, do you have data showing increased nitrogen levels caused phytoplankton blooms which reduced water clarity in Great Bay? *** **A.** We don't have that information related to nitrogen causing phytoplankton blooms in the Great Bay Estuary.[20] (AR D.4.i.3 at 230 ln 16-19, 123 ln 19 – 124 ln 1).

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was not delayed, consideration of the depositions as related supplemental filings is allowed pursuant to 40 C.F.R. § 124.17(a)(2).

[18] Putting blinders on, EPA continues to reference Dr. Short's comments as the scientific basis for imposing stringent TN limits. Resp. at 17, 51. The Short deposition confirmed that none of his studies were designed or intended to determine what factors were responsible for changing eelgrass populations. AR D.4.i.2 at 16 ln 18-23.

[19] EPA's 2006 SOE references do not say nitrogen is causing cultural eutrophication; they indicate it is *not* evident but caution should be taken with further *increases*. Resp. at 28. The 2006 SOE states "Researcher are still debating the possible effects of the increasing DIN concentrations on Great Bay because it is a unique system, both hydro-dynamically and biologically, that may respond differently to excess nitrogen than other estuaries. So far, the typical effects of excess nitrogen have not been observed in Great Bay, although DIN concentrations in Great Bay are similar to concentrations in other estuaries where negative effects have been clearly observed." AR M.28 at 12. That evidence does not support a major reduction in TN loadings to the system as proposed by EPA.

[20] Mr. Currier stated that the 2009 Numeric Criteria were based on the assumption that nutrients had caused this effect to occur. AR D.4.i.1 at 136 ln 6-12. Obviously that assumption was misplaced given Trowbridge's responses.

In 2006, eelgrass populations plummeted sharply. Dr. Short, in particular, began to claim, with no objective scientific support, that nitrogen caused this event to occur. [21] DES stated that it was this specific eelgrass decline that lead to the estuary being listed as impaired for eelgrass. AR D.4.i.1 at 106 ln 11-19, D.4.i.4 at 369 ln 1 – 370 ln 11. This condition, however, does not support a conclusion that a narrative criteria violation, related to nutrients, caused that to occur, as explained by Mr. Currier:

> **Q.**...If the situation were that transparency were poor but wasn't caused by the nitrogen component, you could say that you have an eelgrass impairment but not a nitrogen- induced eelgrass impairment... **A.** That's correct ...you would have to do further causation analysis to figure out what was causing the lack of eelgrass. (AR D.4.i.1. at 133 ln 22 – 134 ln 11).

> **b. What information indicated that nitrogen was the cause of the sharp decrease in eelgrass populations occurring in 2006?** ***Answer: Nothing, this was done to appease CLF and avoid a claimed threatened lawsuit.***

At the request of EPA, DES subsequently identified nitrogen as the cause of the eelgrass decline through application of the unadopted 2009 Criteria. Pet. Ex. 4. DES stated that it made this change in impairment listing so EPA could avoid a threatened lawsuit by CLF.[22] *See* email from G. Comstock to P. Currier, P. Trowbridge, and K. Edwardson (Nov. 26, 2008) ("Al Basile just called. To avoid a potential lawsuit with CLF, EPA has decided that Gt Bay should be listed for N."). Mr. Trowbridge confirmed under oath that there was no data showing nitrogen had actually caused a major increase in algal growth after the 2006 floods:

> **Q.** Here's the question: That major decline you don't what caused that in 2006, '7 and '8; right? **A.** Uhm-hmm. Yes. We do not know. **Q.** ... do we know what caused the decline in Portsmouth Harbor? **A.** No. **Q.** Okay. Do we have data showing that there's major increases in algal growth in Great Bay or the

[21] *See, e.g.,* emails between F. Short, P. Trowbridge, P. Colorusso, and J. Latimer (Jan. 17-18, 2008).

[22] Based on information and belief, this claimed threat of CLF lawsuit never existed. This was simply an excuse EPA created to promote the identification of the estuary as impaired by nutrients, even when no objective data indicated that the 2006 eelgrass population downturn had anything to do with nutrient levels. Petitioners are still waiting for EPA to produce the records showing a suit was threatened.

> Portsmouth Harbor area occurring during this time? I suppose the answer's no, or we might have tagged that as a indicator of what was happening; right? **A.** You're referring to phytoplankton? **Q.** Phytoplankton, yeah. **A.** For phytoplankton, no, there's no information. (AR D.4.i.4 at 371 ln 16 – 372 ln 10).

Mr. Trowbridge, under oath acknowledged that it was the flood itself (a natural event) that could have caused the major, rapid decline in eelgrass populations but he never evaluated the effect of that event. AR D.4.i.4 at 382 ln 5 – 383 ln 5. Thus, the depositions confirm that no objective information shows nitrogen had anything to do with the rapid decline in eelgrass that occurred system wide following the 2006 flood and extreme wet weather events. Moreover, the best available scientific information, the field data, which EPA asserts must be used in decisionmaking (Resp.at 47) supports that the eelgrass decline was caused by a rare natural event. AR K.11, D.3. However, EPA claimed it was this "documented impairment" that led EPA to conclude TN restrictions were necessary. Resp. at 29. As the system was identified as nitrogen impaired to protect EPA Region I from a threatened CLF lawsuit and not because of a demonstrated TN impairment, the deposition testimony confirms EPA's action is clear error.

c. Was DES aware that the 2009 Criteria did not reflect the adopted narrative criteria or impacts due to nitrogen in the system? ***Answer: Yes, but DES applied it anyway because EPA said they could call it a narrative translator.***

Since 2005, EPA was demanding that DES adopt new numeric nutrient criteria for Great Bay. AR D.4.i.1 at 21 ln 3-7, 140 ln 7-15, H.14 Ex. 1 at 1. This triggered a series of analyses and data assessments. Under the auspices of PREP and its Technical Advisory Committee, DES, with EPA's input, completed repeated evaluations that determined nutrients had neither caused an algal growth increase nor a change in system transparency:

> Dissolved inorganic nitrogen has increased by 59% over the past 25 years.... No evidence for elevated chlorophyll-a. (AR D.2.i.1). The best predictor of Kd was CDOM (salinity). Obvious water quality trends were not apparent. (AR D.2.i.2). Traditional conceptual models for nitrogen-eelgrass relationships do not work for

> Great Bay. . . . Need a different model which includes tidal amplitude, sediment resuspension and macroalage [sic]. (AR D.1.i.3). Eelgrass biomass declining in Great Bay but no apparent decline in water clarity. (AR D.1.i.4).

The most detailed study of factors affecting system transparency, funded by EPA in 2007, specifically concluded that transparency was not the factor controlling eelgrass growth in Great Bay. AR K.11; Br at 64.[23] As a result of these various detailed data assessments DES and EPA specifically concluded in November 2007 that the "conceptual model" (increasing nutrients will cause reduced transparency) was not supported for this system (AR D.1.i.3):

> **Q:**...By the way, who wrote these conclusions? Was this a collaborative effort ...or was it -- were these just your conclusions? **A.** This was ... certainly collaborative. It wouldn't have everyone's name on it if they didn't review it. **Q:** So [Conclusion]"The traditional conceptual models for nitrogen eelgrass relationships do not work for Great Bay." Which models were you talking about?... Was it also the model that says phytoplankton -- excessive phytoplankton growth this going to lead to significant decreases in transparency when you increase nutrient loads? Isn't that also one of the conceptual models you're talking about there? **A.** Yes.[24] (AR D.4.i.3 at 222 ln 6 – 223 ln 7).

Despite these repeated analyses of the available system data showing that nitrogen had never caused any excessive plant growth (*i.e.*, cultural eutrophication) leading to declining system transparency,[25] EPA informed the state that they should apply the draft 2009 Criteria and call it a "narrative translator" to avoid concerns of illegal application of a new unadopted, numeric criteria. AR D.4.i.1 at 109 ln 17 – 110 ln 14, Pet. Ex. 4. Both Mr. Currier and Mr. Trowbridge, however, knew that exceeding the 2009 criteria was not sufficient grounds to claim a narrative

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[23] EPA's assertion that the 2009 Criteria were based on an analysis of Bay data showing that the current transparency level in Great Bay was insufficient is another fabrication and unsupported statement. Resp. at 27. Mr. Trowbridge admitted that a poorer level of transparency had supported acceptable eelgrass growth in Great Bay up through 2005 as well as 2009-2011. AR D.4.i.3 at 240 ln 3- 241 ln 21. The 2009 Criteria were not based on what was considered "necessary" to protect eelgrass in Great Bay. AR D.4.i.3 at 239 ln 6.

[24] EPA claims the conceptual model was confirmed appropriate for Great Bay Estuary. Resp. at 25-26, n. 13. That is a clear fabrication as EPA's expert (Matt Liebman) was part of this collaborative presentation.

[25] *See* Letters to and from Drs. Langan & Jones (lead researchers for Great Bay and UNH Jackson Laboratory members) (Jan. 1 and Feb. 19, 2013) (providing a summary of the research efforts conducted for the bay indicating that none of the studies showed that TN significantly impacted algal growth, transparency or DO in this system).

criteria violation since it was not based on a "cause and effect" relationship showing that the nutrients "resulted" in "cultural eutrophication" in the system:

> **Q.** Mr. Currier, you indicated that this analysis of light attenuation versus total nitrogen at trend stations, that this analysis doesn't prove causation, correct? **A.** Yes. **Q.** Okay. So is this analysis sufficient in your mind to determine that nitrogen is causing a violation of the narrative standard in that it doesn't demonstrate causation? **A.** It's not sufficient, no. (AR D.4.i.1 at 80 ln 14-23).

See also AR D.4.i.4 at 332 ln 22 – 333 ln 8. Thus, it is apparent that EPA's claim that nitrogen discharges caused or contributed to violation of the state's existing narrative standard by causing "cultural eutrophication" resulting in eelgrass declines in Great Bay was a pure regulatory fabrication orchestrated by EPA and CLF. There is not now, nor has there ever been, a documented narrative violation caused by nutrient levels in this system and EPA's repeated assertions to the contrary are flatly disputed by this deposition testimony. This is why the science misconduct charges are still under review by the Office of Inspector General.

d. Were relevant scientific studies excluded from the 2009 Criteria document and 2010 peer review? ***Answer: Any documents indicating TN had not caused impacts were excluded from the assessment.***

The 2009 Criteria document issued by DES claiming stringent TN criteria were necessary to address eelgrass impairments was based on "weight of evidence" analysis. Resp. at 21-25. However, Petitioners asserted that to complete this 180 degree reversal in scientific conclusions, a little housekeeping was in order – the elimination of any contrary evidence. Br. at 13, 24, 93. Mr. Trowbridge confirmed that the inconsistent evidence was omitted from the report:

> **Q.**... 2009 criteria document that you developed, that's a – you said you used a weight of evidence analysis to come up with the criteria in that report; right? **A.** Yes. **Q.** Did you include in that report the evidence that indicated that transparency was not the cause of eelgrass loss in the system that you had developed in any of your earlier analyses? **A.** What are you referring to for an earlier analysis? **Q.** That transparency, or analysis of transparency had not changed over time; was that included anywhere in that report? **A.** No. **Q.** What about all the statements that Great Bay is not a transparency-controlled system,

> from EPA and Dr. Short, and those are the ones you and I walked through in your first round of the deposition. Did you include the statements that Great Bay was not transparency-controlled? **A.** I'm not sure; I don't believe so. **Q.**... did you include the statements that the cause of eelgrass losses and changes in the system were unknown, statements that were contained in the various 303d listing documents? **A.** Uhm, I have to look through. I'm not sure. I'm not seeing it here. **Q.** Did you include any of Morrison's conclusions that the major factors controlling transparency in the system were, in fact, turbidity and color-dissolved organic matter, and not chlorophyll? **A.** I believe we included equations from the Morrison study. **Q.** Did you highlight the Morrison study concluded that the transparency level of Great Bay was acceptable, and that you needed to look at something else as the cause of eelgrass demise? **A.** I'm not sure if we have that statement in here. **Q.** It's pretty important statement, isn't it? It made your report. Did you – well, did you include any discussion about how the primary graphs that you were using to develop the transparency and nitrogen relationships were merely correlations and did not demonstrate causation? **A.** I don't believe so. (AR D.4.i.4 at 436 ln 8 – 438 ln 9).

Thus, it is apparent that the alleged "weight of evidence" document carefully excluded any contrary evidence that would show the alleged transparency-algal-TN connection was not supported for this system.[26] *See also* AR D.4.i.3 at 232 ln 22 – 233 ln 17. Moreover, both DES and EPA understood that the TAC review had identified a major flaw in the new analysis – absence of a cause and effect relationship:

> The comment that seems the hardest to refute is that nitrogen is correlated with light attenuation. Nitrogen was not proven to be the causative agent for light attenuation. Moreover, nitrogen is a component of all the factors causing attenuation (phytoplankton, CDOM, particulate organic matter) so a correlation would be expected.

AR H.16 attached email from Philip Trowbridge to Jim Latimer (EPA) (Nov. 19, 2008). The DES solution (reviewed by EPA Region I) was to simply claim that the new regression analyses actually did represent "cause and effect" for this system. 2009 Numeric Criteria RTC at B3. In short, DES lied to cover its tracks as Mr. Trowbridge readily admitted under oath that the

[26] Mr. Currier noted that a weight of evidence analysis should not produce results contrary to the actual data collected. AR D.4.i.1 at 90 ln 14 - 21. Likewise, this "weight of evidence" approach was directly at odds with the SAB recommendations on how such analyses should be conducted: "The Guidance can be used to develop nutrient criteria in a tiered weight of evidence assessment using appropriately modified EPA approved procedures together with other approaches *that address causation*." AR M.23 at 37 (emphasis added). EPA actually excluded the prior data analyses that confirmed this lack of causation.

evaluations presented in the 2009 Criteria did not really reflect "cause and effect". AR D.4.i.3 at 234 ln 11-15. It is apparent that the information "fed" to the peer reviewers was materially incomplete and purposefully misleading. EPA was also responsible for preventing the Coalition from pointing out these issues to the peer reviewers. AR D.4.i.1 at 144 ln 3 – 145 ln 20. It is hard to imagine any more important information the peer review needed to consider than the data assessments evaluating whether (1) nutrients had caused any change in system transparency/algal growth and (2) low DO, common in the tidal rivers, was actually caused by algal growth. As this critical information was withheld from the reviewers, it resulted in a review that was purposefully biased and fundamentally flawed. EPA's actions mandate the remand of this permit. *Home Box Office, supra* at 7.

e. What information indicated that controlling nitrogen levels would allow restoration of eelgrass growth in the tidal rivers? *Answer: None, DES confirmed transparency was poor due to natural conditions and nitrogen reduction would have a negligible effect.*

Eelgrass apparently did historically exist in the Lamprey and Squamscott Rivers but these populations disappeared decades ago (pre-1960) and the cause of their loss is "unknown". Fact Sheet at 17, 25. This admitted lack of information regarding what triggered that eelgrass loss (well before the 1988 wasting disease epidemic decimated Great Bay and Little Bay) was apparently no impediment to EPA claiming the nutrients were the culprit. Resp. at 29, 34. That decission, however, it unsupported by a scintilla of evidence.[27] DES noted that the absence of eelgrass in the tidal rivers is consistent with the poor light penetration in this part of the system, but the components controlling this situation were not well known. AR D.2.i.2. In 2007, EPA funded the Morrison study, which confirmed that color (a natural condition) coming from the tidal rivers was the key factor controlling transparency in the tidal rivers and the Bay. Br. at 64,

[27] EPA decision may not be based on "sheer guess work". *Leather Indus. of Am. v. Envtl. Prot. Agency*, 40 F.3d 392, 408 (D.C. Cir. 1994) (citing *Am. Petroleum Inst.*, 665 F. 2d 1176, 1186-87 (D.C. Cir. 1981)).

AR K.11. Despite confirmation that non-nutrient related factors control tidal river transparency, EPA continues to insist that eelgrass losses in the Lamprey are nutrient induced. Resp. at 29, 34 (finding TN impaired Lamprey River transparency and eelgrass). However, the inability of eelgrass to now inhabit an area due to natural conditions is not a narrative criteria violation. Accord, Resp. at 11.[28] As confirmed by the depositions:

> **Q.** If the transparency level in the Squamscott and Lamprey River were naturally low due to color dissolved organic matter and turbidity in those systems, would that transparency be considered a violation of state standards? **A.** No. (AR D.4.i.1 at 87 ln 7-12). **A**...In terms of the narrative standard of "as naturally," if it was determined this was naturally occurring, then it would not be an impairment. (AR D.4.i.4 at 431 ln 1-3).

Moreover, Mr. Trowbridge concurred that poor transparency in the tidal rivers due to color and turbidity is a "natural condition." AR D.4.i.4 at 427 ln 2 - 428 ln 2. Consequently, DES admitted the obvious: regulating TN would not materially affect eelgrass restoration in the Lamprey or any other tidal river, because natural conditions control tidal river transparency.

> **Q.**[Do the] [d]ata or analyses that show [if] you control nitrogen, you're going to fix that transparency problem, transparency issue in the Lamprey River? **A.** The answer is I don't believe so. It's the same issue as the Squamscott. (AR D.4.i.4 at 432 ln 2 – 433 ln 1).

At the depositions, DES concocted the theory (presented in the Burack letter) that the eelgrass loss "must be due to TN" since it is the only factor that DES "believes" has changed.[29] AR D.4.i.4 at 407 ln19 – 410 ln 22, 425 ln 8 – 428 ln 2. However, this new theory has no credible basis in fact and is obviously incorrect. The current transparency is poor, unrelated to TN influences, as well documented by various studies and admitted by DES under oath. The Burack letter also acknowledged these facts but, like EPA, DES was anxious to ignore the facts and

[28] EPA's claim that it was operating at the "frontiers of scientific knowledge." (Resp. at 55) is unsupported. The science on what affects transparency in the Great Bay system was complete; EPA just didn't report it.

[29] Assuming transparency was better in the 1960's, it is apparent that the degree of color entering the system must have changed over time, as color now controls transparency in the tidal rivers.

regulate the usual suspects. Resp. at 62, 94. That does not make the position scientifically defensible; it makes the action arbitrary and capricious.

In summary, it is clear that (1) transparency is now too poor in the tidal rivers to allow eelgrass growth, (2) the condition is natural, and (3) no amount of TN regulation will change that fact or allow eelgrass to be restored. EPA's assertion that DES never admitted "TN had not caused any changes or that the 2009 correlations were unsubstantiated" (Resp. at 67) is not just unsupported, it is demonstrably incorrect. Moreover, it is also apparent that EPA's selected approach cannot achieve eelgrass restoration and is therefore not "protective" – assuming such restoration is possible.[30] EPA's actions are based on clear factual error.

f. The Undisputed Facts Confirm Clear Error

The depositions confirm that EPA's assertions regarding its "proof" of narrative criteria violations, cultural eutrophication and the need for stringent TN control are the result of a four year effort of deception and record manipulation. There is not now nor has there ever been excessive algal growth in this system, impairing transparency and causing the demise of eelgrass. Regulating nitrogen is unsupported. EPA's position to the contrary is pure fabrication, as the sworn testimony of the DES officials that developed the analyses confirms. *See supra* note 25; Chapra Affidavit. EPA's failure to reveal to the public and peer review the results of prior analyses confirming the "nitrogen: algal increase: transparency decrease conceptual model" was inapplicable to this system (1) requires the Board to consider the depositions (and related

[30] Citations to *Upper Blackstone* do not change these facts which govern the need to control nutrients pursuant to the states narrative standard. In *Upper Blackstone*, both the Board and the First Circuit noted the well documented impacts of excessive algal growth on that system: fish kills, extreme algal blooms, low DO caused by the algal blooms. 690 F.3d at 12. In this case, the opposite holds true; there is no excessive algal growth impacting eelgrass, no decline in system transparency due to nutrients, and no low DO due to algal growth. *See supra* note 25.

exhibits) to be part of the record on review[31] and (2) renders EPA's permit action "clear error" for a host of factual and legal reasons. *Home Box Office*, *supra* at 17; *Texas Oil & Gas Ass'n, supra,* note 11 .

5. Peer Review Did Not Address the Coalition's Issues

Petitioners raised a series of procedural and substantive arguments regarding the validity of using the peer review/other DES documents (*see e.g.,* 2012 CALM response) as a basis to respond to the scientific errors identified in the comments. Br. Sec. IV. In response, EPA simply asserted that (1) the peer review/DES documents were valid for refuting all claims of inadequate science, (2) Petitioners didn't explain what fundamental errors/data omissions were made, (3) the CWA does not require citizen involvement in such reviews and, in any event, (4) EPA does not have to assess the technical validity of those decisions "where the state has considered and addressed the issue". Resp.at 75 and 84.[32] EPA's conclusory response confirmed Petitioners assertion that the June 2010 peer review was considered the final word on the science, rendering the 2011 permit comment period a shell proceeding. Resp. at 85-86. EPA never demonstrated that any of the state's documents considered the type of technical objections raised by the Coalition (*i.e.*, the method used was flawed because disparate environmental settings were assessed in the same analysis, confounding factors were not considered and prior assessments were excluded from the review).[33] EPA simply assumes these issues were covered.

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[31] *Ass'n of Pac. Fisheries v. Envtl. Prot. Agency*, 615 F.2d 794, 811-812 (9th Cir. 1980) (As these records confirmed that EPA ignored the relevant information and "proceed[ed] upon assumptions that were entirely fictional or utterly without scientific support" a supplement is permissible.).

[32] EPA's claim that the fundamental errors were not demonstrated completely ignores the written comments, oral testimony, and slides contained within the Newmarket presentation. AR N.32 slide 13, 33; *see* AR N.59 slide 13.

[33] EPA is asserting that any scientific conclusion stated by DES is taken as Gospel. That is precisely what the CWA does not allow: 40 C.F.R. § 131.11; *see also Natural Res. Def. Council v. Envtl. Prot. Agency*, 16 F.3d 1395, 1398 (4th Cir. Va. 1993) ("The court agrees with EPA that its duty, under the CWA and the accompanying regulations, is to ensure that the underlying criteria which are used as the basis of a particular state's water quality standard, are scientifically defensible . . ."); *Chem. Mfrs. Ass'n v. Envtl. Prot. Agency,* 28 F.3d 1259, 1265 (D.C. Cir. 1994) (stating, when challenged, EPA must provide a "full analytical defense of its model" and show "there is a rational

As noted by the Coalition, CWA § 101(e) plainly requires EPA to promote public participation in water quality standards revision as does the applicable WQS regulations. Br at 46 n.51, *see Citizens for a Better Env't v. Envtl. Prot. Agency*, 596 F. 2d 720 (9th Cir. 1979). EPA's purposeful exclusion of public input from the peer review process and subsequent claim that the peer review adequately answered all subsequent issues raised in the permit process (Resp. at 74-75) plainly denies due process and violates the Act. A three-year old, highly restricted peer review, cannot possibly address all of the technical deficiencies Petitioners raised from December 2011 to August 2012. In any event, the sufficiency of the peer review to address the public comments would need to be demonstrated with particularity, not by conclusory statements of counsel.[34] EPA's actions were clear error.

The main point repeatedly raised by the Coalition was that the 2009 stressor-response assessment developed by DES was facially deficient because it failed to assess the other confounding and co-varying factors that could explain, independent of nutrients, why DO and transparency varied as it did. AR C.2 at 17. DES admitted under oath that no such "confounding factors" analysis had ever occurred. AR D.4.i.4 at 438 ln 16- 439 ln 10. The 2010 SAB review and EPA's subsequently issued Stressor Response Guidance document expressly state that these procedures may only be used where sufficient data are available to assess confounding factors.[35] Thus, by DES's admission, and the complete absence of a "confounding factors" analysis in the

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relationship between the model and the known behavior of the ...pollutant to which it is applied."); *Columbia Falls Aluminum .v Envtl. Prot. Agency,* 139 F. 3d 914, 923 (D.C. Cir 1998) (EPA "retains the duty to examine key assumptions as part of its affirmative burden of promulgating a non-arbitrary, non-capricious rule.").

[34] *Baltimore Gas & Elec. Co. v. U.S.*, 871 F.2d 108, 116 (D.C. Cir. 1987) ("The failure to respond to comments is significant only insofar as it demonstrates that the agency's decision was not 'based on a consideration of the relevant factors.' Under the 'arbitrary and capricious' standard of review, an agency is thus required to respond to significant comments that cast doubt on the reasonable of the rule the agency adopts.") (internal citations omitted).

[35] EPA's Stressor-Response Guidance document specified that the methods would only be considered sufficient if data are available on "causal variables, response variables and confounding factors." AR M.4 at 4. Consequently, EPA notes that "many confounding factors must be considered when estimating the effects of nitrogen/phosphorus on a measure of aquatic life in streams..." AR M.4 at 11. Absent such information, a "scientifically defensible" relationship generally cannot be developed.

administrative record, EPA's claims regarding the reliability of the stressor-response evaluation used to generate the 2009 criteria have no support. AR D.4.i.4 at 438 ln 11 439 ln 4, 10, Chapra Affidavit. While EPA's response feigned confusion on this issue (Resp. at 56-57), EPA Region I was fully aware of what the concern was:

> The SAB stated that purported stressor-response relationships based on statistical associations are not sufficient to prove cause and effect *unless supplemented by additional analyses, such as multiple regressions or classification to eliminate the effects of potentially confounding, or co-varying variables.* In addition the SAB emphasized that the strength of the stressor-response relationship and levels of uncertainty should be quantified. Hall and Gallagher emphasize these points in their review of the Great Bay nutrient criteria.[36]

Thus, EPA was fully aware that the available analyses confirmed that (1) the wrong conceptual model was being used and (2) a confounding/covarying analysis was never completed. Consequently, EPA's reliance on the 2009 Criteria document in the decision making process and failure to check the reasonableness of key assumptions was clear error.[37]

III. Legal Issues

1. "Cause and Effect" and Reliance on Only "Scientifically Defensible Information" are a Bedrock CWA Principles in Criteria Derivation and Permit Issuance

In response to Petitioners argument that the nutrient endpoints used to set the numeric criteria were not "scientifically defensible" because they are admittedly not based on a "cause and effect" relationship in this system, EPA raises a new defense: the CWA and implementing regulations do not require "cause and effect" or the use of scientifically defensible information.

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[36] The Liebman analysis also noted deficiencies in the confounding factors analysis – the analysis was not sufficient for algal growth, transparency or DO. AR H.72 at 3-5. It should be noted that DES never made any of the Region's "suggested improvements", the parties simply pretended no improvements were necessary. There is no other "independent assessment." Peschel Affidavit.

[37] EPA claims that since DES used the term "weight of evidence" the 2009 document is therefore reliable. Resp. at 22, 25, 54. This is specious. The EPA's argument regarding the use of the term "weight of evidence" is similar to the following analogy: DNA evidence is considered reliable when properly collected and properly analyzed. Therefore, since courts have already ruled DNA evidence to be reliable in certain circumstances, it is reliable in all circumstances by invoking the moniker "DNA evidence." Obviously just invoking a term of art does not make an analysis reliable or subject to judicial deference, one has to show the analysis was done properly. EPA never does.

Resp. at 41-45. EPA, per usual, cites to no case or guidance document that ever made such a claim, because there is none. EPA's position is clear error. The CWA is a "science-based" statute that requires the establishment of criteria "accurately reflecting the latest scientific information" regarding "...the effects of pollutants on biological community diversity, productivity and stability..." Section 304(a)(1); *accord*, 40 C.F.R. § 131.3(c) (criteria developed by EPA are based on "the effect of a constituent on a particular aquatic species"). No criteria (including a narrative criteria interpretation) can be approved unless it is "based on a sound scientific rationale". *Id.* § 131.11 (a). Likewise, the effluent limit generated to meet the "applicable standard" must be demonstrated to be "necessary" and "which the permitting authority demonstrates will attain and maintain applicable narrative water quality criteria". *Id.* § 122.44(d), *passim*. Obviously compliance with the statute and applicable regulations requires an objective scientific assessment to show that the selected approach is both "necessary" and "sufficient" to achieve criteria compliance. *Supra*, note 34.

Given the language of the Act and the implementing regulations, it is not surprising that courts have determined "that neither the language of the Act nor the intent of Congress appears to contemplate liability without causation." *Nat'l Metal Finishers Ass'n*, 719 F.2d. at 640; *Ark. Poul. Fed. v. Envtl. Prot. Agency*, 852 F. 2d 324, 328 (8th Cir. 1988) (stating the discharge must at least be "a cause" of the violation). In the TMDL context, nutrient wasteload allocations must be based on a documented "cause and effect" relationship using appropriate models:

> An integral part of the TMDL process is the analysis of cause-effect relationships via a mathematical model of loading input and resulting water quality response.[38]

Even EPA's response admits that NPDES permits must be based on "all available *scientific* information." Resp. at 47 (emphasis added). It would seem obvious but, if the information is not

[38] Technical Guidance Manual for Developing Total Maximum Daily Loads Book 2: Rivers and Streams; Part 1: Biochemical Oxygen Demand/ Dissolved Oxygen and Nutrients/ Eutrophication USEPA March 1997 at 4-27.

"reliable", it does not meet the definition of "scientific."[39] In assessing the reasonableness of the proposed 2009 Criteria, even EPA Region I (Mr. Liebman) noted: "I reviewed the Great Bay nutrient criteria to determine whether the authors...provided enough information to establish *a scientifically defensible cause and effect relationship."* AR H.72 @ 1; Peschel Affidavit (confirming no other "independent" EPA analyses exist). EPA's response admits that all estuaries are "unique" (Resp. at 13) and that "it is impossible to recommend a single national criteria." Resp. at 20. Therefore, this cause and response relationship must be confirmed on a case-by-case basis, not simply by using "causal and response variables known to exist in nature." Resp. at 14.[40]

On its face, § 122.44(d) itself indicates that more restrictive limits only apply if the discharge "causes" a water quality criteria excursion.[41] The *Upper Blackstone* decisions repeatedly refer to the fact that nutrients were demonstrated to be "causing" extensive "cultural eutrophication" as the basis for imposing more restrictive limitations.

> Both the MERL model and the field measurements demonstrated that as nitrogen loadings increase, dissolved oxygen decreases and chlorophyll *a* increases, with both becoming less stable and subject to greater swings at higher levels of nitrogen. The EPA concluded that the basic causal relationship demonstrated in the MERL experiments "corresponds to what is actually occurring in the Providence/Seekonk River system." (690 F.3d at 25-26).[42]

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[39] Webster's Dictionary defines a "scientific method" as "a method of research in which a problem is identified, relevant data are gathered, a hypothesis is formulated from these data, and the hypothesis is empirically tested."

[40] The Agency's guidance on nutrient criteria development broadly discusses the need to address how causal (nutrients) and response (algal growth) is documented for particular water bodies. *See e.g.,* M.12. This means a case-specific cause and effect relationship must be developed for the estuary.

[41] The "or contributes" language means it is contributing to the "cause" of the violation.

[42] *Upper Blackstone*, 690 F.3d at 11 ("An influx of nitrogen and phosphorus from sewage treatment plants ***is causing serious problems*** for the River's waters and those downstream. The Blackstone, Seekonk, and Providence Rivers, and Narragansett Bay, all suffer from severe cultural eutrophication."), at 14 ("State water quality standards generally supplement these effluent limitations, so that where one or more point source dischargers, otherwise compliant with federal conditions, are nonetheless ***causing a violation of state water quality standards***, they may be further regulated to alleviate the water quality violation. [30 U.S.C.] § 1311(b)(1)(C) ...") (emphasis added).

Because the prior data assessments could not show this "causal relationship", EPA's convenient recommendation is to ignore this bedrock requirements of the Act. This "post hoc rationalization" is clear error. Likewise, EPA's claim that it may render narrative criteria interpretation decisions on information that does not meet the "scientifically defensible" standard to show causation exists or that it may ignore the site-specific assessments that confirm such causation does not exist, is equally misplaced.

2. EPA's Interpretation of 40 C.F.R. § 122.44(d) Implementation is Misplaced

EPA asserts that Petitioner's understanding of how § 122.44(d) operates is in error. Resp at 43. EPA asserts that it may use the procedures identified in § 122.44(d)(1)(vi) to not only develop an effluent limitation, but also to declare that a narrative violation exists. *Id.* EPA claims that *Upper Blackstone* supports this interpretation of the rule. EPA's arguments are unsupported by the referenced cases, the language of the rule, and are contrary to the structure of the Act.

Contrary to EPA's assertion, the *Upper Blackstone* decision nowhere supports EPA's (re)interpretation of § 122.44(d). A created numeric value cannot be used to determine that narrative criteria (which describe desired physical or biological conditions in the water body) are being violated. The Rhode Island narrative criteria at issue in *Upper Blackstone* also was based on preventing "cultural eutrophication" as evidenced by nutrients causing excessive algal growth, low DO and related effects. In that case, the court first looked to see if the effects of "cultural eutrophication" existed and were documented to be caused by nutrients:

> An influx of nitrogen and phosphorus from sewage treatment plants is causing serious problems for the River's waters and those downstream. The Blackstone, Seekonk, and Providence Rivers, and Narragansett Bay, *all suffer from severe cultural eutrophication.*(690 F.3d at 11)... Here, the EPA states, and the record reflects, that the MERL *model demonstrated the relationship between nitrogen loading, dissolved oxygen, and chlorophyll a production* for a range of loading

> scenarios *in a water environment similar to the Bay's.* (*Id.* at 27). *Subsequently,* in order to address the severe and ongoing phosphorus-driven cultural eutrophication in the Blackstone River, the EPA incorporated a more stringent phosphorus limit into the 2008 permit. In formulating this limit, the EPA considered the national and regional guidance criteria and recommended values it had recently published. (*Id.* at 31) (Emphasis added).

Thus *after* "cultural eutrophication" was adequately documented, and the nutrient cause verified, the court *then* determined that EPA's derivation of permit limits using the methods described in Section (vi) was acceptable, not that EPA could claim cultural eutrophication existed based on Section (vi) methods. Under EPA's approach, the Agency may equate "cultural eutrophication" (the condition intended to be regulated under the adopted narrative criteria) with a numeric value and may conclude more restrictive limits are "necessary" *even if the water body is not exhibiting signs of cultural eutrophication.* However, the NPDES regulation were designed to implement the narrative standard as closely as possible with the state's intent – not to substitute a new numeric value in place of it.[43] Br. at 44.

The structure of the rule and "relevant" preamble discussion[44] confirms this approach. Under §122.44(d)(1)(ii), the permit writer first determines if "a discharge… causes or contributes to an instream excursion". In the case of a narrative standard one looks to see if the characteristics that are intended to be prevented are evidenced in the waters (*i.e.,* cultural eutrophication causing some type of system imbalance). If it is determined that an excursion is

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[43] *See e.g., Am. Paper Inst. v. Envtl. Prot. Agency*, 996 F.2d 346, 351 (D.C. Cir. 1993) ("Of course, that does not mean that the language of a narrative criterion does not cabin the permit writer's authority at all; rather, it is an acknowledgement that the writer will have to engage in some kind of interpretation to determine what chemical-specific numeric criteria--and thus what effluent limitations--are most consistent with the state's intent as evinced in its generic standard.").

[44] EPA cites to preamble indicating that one does not need to wait for impairment to trigger the application of a more restrictive limit under § 122.44(d). That is true, but irrelevant. One may project a violation of a narrative standard (*i.e.,* that "cultural eutrophication" is predicted to occur in the future) if adequate modeling or other reliable predictive capabilities are available, considering the physical parameters of the system. This would restrict future load increases. However, in this instance, EPA is dramatically lowering the existing load to the system, claiming that it is currently far too high. In that case, EPA should be able to readily identify the existing cultural eutrophication and identify, with a reasonable scientific certainty, how nitrogen caused the excessive plant growth to occur. The fact that EPA is desperately trying to avoid this demonstration confirms that they are unable to do it.

occurring (or likely to occur) then, and only then, under §122.44(d)(1)(iii) "the permitting authority must establish effluent limits using one or more of the following methods..." The structure of the rule is clear, the methods for picking an protective instream level are only used to set the effluent limits, not to decide that the waters are in violation of the narrative standard. The 1989 preamble discussion confirmed this sequence:

> Subparagraph (i) should assist the permitting authority in determining whether it is necessary, under Federal regulations, to establish limits for a pollutant. *Note, however, this is different from calculating water quality-based effluent limits.* ...Proposed subparagraph (iv) addresses the situation in which...the permitting authority does not have a numeric criteria to use *in deriving a water quality-based limit.*" 54 Fed. Reg. 1303, 1304 (Jan. 12, 1989) (emphasis added).

As is clear from these quotes, §122.44(d)(1)(vi) (original § 122.44 (d)(1)(iv)) is used to set the permit limits *after the excursion (violation) is identified*, not to declare the waters in exceedance (violation) of a state's narrative standard in this permit. Any other approach would turn the structure of the Act on its head.[45] EPA is not implementing the adopted narrative standard, EPA is replacing it with a new numeric standard as if it was the adopted standard. That plainly violates the Alaska Rule and 40 C.F.R. § 131.21, as well as, Section 303(c) of the Act. Br. at 8, 46. Contrary to EPA's position, *Upper Blackstone* did not ratify that procedure. EPA is simply jumping over the requirement to confirm a narrative criteria violation exists by claiming that exceeding a specific nutrient concentration constitutes a narrative criteria violation, regardless of whether or not nutrients are actually causing excessive plant growth or DO violations. That is clear error.[46]

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[45]Under EPA's approach, a state could determine that an area is not exhibiting "cultural eutrophication" and therefore, not place the water on the § 303(d) list, regardless of the nutrient concentration present. However, when it comes time for permitting, EPA substitutes its chosen numeric criteria for the narrative standard and determines that a more restrictive limit is needed to meet the narrative criteria, contrary to the § 303(d) determination.

[46] EPA's latest position is a major reinterpretation of 40 C.F.R. § 122.44(d), without rulemaking and contrary to the structure of the Act. It is thus, therefore, patently illegal and may not be applied in this instance. *Amer. Mining Congress v. Mine Safety & Health Admin.*, 995 F.2d 1106, 1111 (D.C. Cir. 1993) ("... any agency statement not subjected to notice-and-comment rulemaking will be more vulnerable to attack not only in court but also within the

3. EPA has Acknowledged Clear Error by Not Refuting Facts and Arguments

A significant number of critical facts and argument were never refuted in EPA's main brief. These issues should be deemed admitted. *Supra*, note 5. In particular, EPA did not contest that the FOIA responses confirmed over two dozen critical factual assertions made in EPA's Fact Sheet regarding the Lamprey and Squamscott Rivers are unsupported. Br.at 10, 24. In addition, the facts alleged on Brief pages 11,19-20, 26, were also not contested. Finally, EPA never responded to the argument that the wrong form of pollutant was being regulated (Br. 79-80) or that nitrate is not at a toxic level. Br. at 77-79. EPA's Appendix A at 34-36, conceded EPA was not claiming eelgrass suffered impairment from nitrate toxicity. Consequently, these uncontested facts and arguments confirm the Agency's decision to impose stringent TN limitations is both unnecessary and unsupported, and therefore, clear error.

This petition for review should be granted.

Respectfully submitted,

Date : Mar 1, 2013

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agency itself."); *U.S. Telecom. Ass'n v. Fed. Commc'ns Comm'n*, 400 F.3d 29, 35 (D.C. Cir. 2005) ('a substantive change in the regulation,' requires notice and comment) (quoting *Shalala v. Guernsey Mem'l Hosp.*, 514 U.S. 87, 100 (1995)).

CERTIFICATION OF SERVICE

I hereby certify the copies the Petitioner's Reply to EPA Region 1's Memorandum in Opposition to the Petition for Review in connection with NPDES Appeal No. 12-5, were sent to the following persons in the manner indicated:

By Electronic Filing:

Clerk of the Board
U.S. Environmental Protection Agency
Environmental Appeals Board 1103M
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East Building
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Attachment 3

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March 8, 2013

Via Electronic Filing

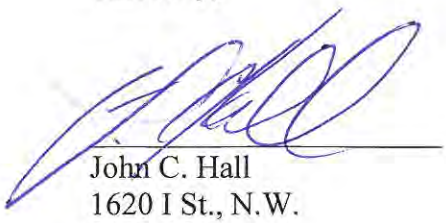
U.S. Environmental Protection Agency
Clerk of the Board
Environmental Appeals Board 1103M
1200 Pennsylvania Avenue, N.W.
East Building
Washington, D.C. 20460-0001

Re: Town of Newmarket Wastewater Treatment Plant
Permit Number: NH0100196
Appeal Number: NPDES 12-05

Dear Ms. Durr,

Please find attached the Petitioners' Response to Amicus Briefs of New Hampshire Department of Environmental Services and Conservation Law Foundation, Town of Newington, and New Hampshire Audubon, and accompanying Certificate of Service.

Sincerely,



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BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

In re:	)	
Town of Newmarket	)	
	)	NPDES APPEAL No. 12-05
NPDES Permit No. NH0100196	)	
	)	

PETITIONERS' RESPONSE TO AMICUS BRIEFS OF NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES AND CONSERVATION LAW FOUNDATION, TOWN OF NEWINGTON, AND NEW HAMPSHIRE AUDUBON

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Counsel for Petitioners Great Bay Municipal Coalition

Petitioners respectfully submit this Response to Amicus Briefs of New Hampshire Department of Environmental Services (the "Department" or "DES") and Conservation Law Foundation, Town of Newington, and New Hampshire Audubon (collectively "CLF").

Response to DES Amicus Brief

I. The Board Must Disregard Unsupported Statements of Counsel

The entire DES Amicus Brief ("DES Am. Br.") (as well as Sections II, and III. D. of CLF's brief ("CLF Am. Br.")) contains nothing more than unsupported statements of counsel. DES attempts to characterize its filing as "an attempt by NHDES to correct some of the most important mischaracterizations." DES Am. Br. at 2. In actuality, these unsupported statements constitute blatant mischaracterizations of the record now before the Board. In particular, the Department fails to cite to any documents supporting its positions and, through counsel, simply makes factual averments in hopes that the Board will accept the statements as true. This is clearly improper, indirect testimony by DES counsel. *See, e.g., Jin Chun Lin v. Holder,* 430 Fed. Appx. 54, 56 (2d Cir. 2011) (citing *Immigration and Naturalization Serv. v. Pinpathya*, 464 U.S. 183, 188 n.6 (1984)) (finding "counsel's unsupported assertions in a brief do not constitute evidence"); *Puc-Ruiz v. Holder*, 629 F.3d 711, 779 (8th Cir. 2010) (citing *Pinpathya*, 464 U.S. at 188 n.6) (giving no weight to counsel's unsupported assertions in counsel's brief); *Camaj v. Holder*, 625 F.3d 998, 992 (6th Cir. 2010) ("Arguments in parties' briefs are not evidence.") (*citing Duha v. Agrium, Inc.* 448 F.3d 867, 879 (6th Cir. 2006)). Thus, as a matter of law, these unsupported (and as shown herein) demonstrably false averments may not be considered, as such statements do not provide any relevant factual information for the Board's review.

Moreover, the following provides specific information showing that the DES filing fails to meet the "duty of candor" and in many respects, constitutes an attempt at "fraud on the court"[1] in that it was "intentionally false, willfully blind to the truth, or is in reckless disregard for the truth." *Demjanjuk*, 10 F.3d at 348. The sworn statements of the DES lead scientist (Philip Trowbridge) and program manager (Paul Currier) responsible for the development of the 2009 Numeric Criteria, provided herein, *infra,* Section III, confirm that numerous statements in DES' amicus brief are fabrications.[2]

II. DES Never Challenges Any Fact Highlighted by the Petitioners from the 2013 SOE Report Showing Clear Error and Drs. Jones and Langan Confirm the Accuracy of the 2013 SOE Report

It is noteworthy that DES, a major participant in the development of the 2013 PREP State of the Estuaries ("SOE") report (S. Exh. 17), does not challenge Petitioners' presentation of the information contained in the report as in any way inaccurate. The 2013 SOE report independently confirms that the 2009 Numeric Criteria and this proposed permit action are based on clearly erroneous assumptions. Br. at 25-26. A recent letter received from two key University of New Hampshire researchers and PREP TAC members, Drs. Jones and Langan, in response to an inquiry from the Mayors of Dover, Rochester and Portsmouth further confirmed that there is no research or study conducted for this estuary that has ever found nitrogen to be the cause of reduced transparency or DO in this system. S. Exh. 11. The studies have found, however, that these conditions are <u>not</u> driven by nutrient-induced changes.[3] Thus, the "scientific

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[1] The elements of fraud on the court are conduct: "(1) on the part of an officer of the court, (2) that is directed to the "judicial machinery" itself; (3) that is intentionally false, willfully blind to the truth, or is in reckless disregard for the truth; (4) that is positive averment or is concealment when one is under a duty to disclose; and (5) that deceives the court." *Demjanjuk v. Petrovsky*, 10 F.3d 338, 348 (6th Cir. 1993).

[2] Counsel for DES, who submitted the filing, defended the DES deposition and was therefore, fully aware of the statements made under oath by Philip Trowbridge and Paul Currier but chose not to reveal them in his filing.

[3] The following summarizes the response of Drs. Jones and Langan (S. Exh. 11) to four of the eight questions posed to them by the Mayors from Great Bay estuary communities (S. Exh. 10): **Transparency-related questions**

basis" of EPA's action is not based on the demonstrated needs of this system, or any demonstrated impacts (or even likely impacts) of nitrogen and therefore is "clear error."

III. Specific Responses to DES Amicus Brief Claims

The following analysis corresponds to the section headings in DES' amicus brief and demonstrates statements contained within each section are fabrications and are otherwise materially misleading.

a. Background (DES Am. Br. at 2)

The Petitioners stated that EPA is attempting to impose, without rulemaking, new numeric nutrient criteria for nitrogen and transparency, contained in the draft 2009 Numeric Criteria document, which have no demonstrable relationship to the actual environmental conditions or needs anywhere in the Great Bay estuary. *See* Petition for Review ("Pet.") at 3-26. DES admits it used the 2009 Numeric Criteria document as "numeric thresholds" to designate waters as impaired. DES Am. Br. at 2. However, DES claims this was simply the implementation of its existing narrative standard: "[t]hese thresholds guide DES's decision as to

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Question #1: Has data collected for the estuary confirmed that changing TN levels have caused an increase in phytoplankton growth, significantly lowering water column transparency in Great Bay, Little Bay or the Piscataqua River? (S. Exh. 10 at 4). ***Answer:*** *No....There are no places where we are aware of documented increasing phytoplankton populations, and in many areas chlorophyll a remains present at relatively low levels.* (S. Exh. 11 at 1-2).

Question #3: Do [transparency] studies indicate that reducing TN levels is likely to result in a significant improvement in water column transparency for either Great Bay or the tidal rivers? (S. Exh. 10 at 4). ***Answer:*** *No...TN reductions would not appear to provide much in the way of improving transparency through this mechanism, although no study has been conducted to address this.* (S. Exh. 11 at 2).

Question # 4: Have studies determined that the significant eelgrass declines which occurred systemwide in 2006 were not due to the impacts of excessive rainfall occurring that year but were caused by TN related impacts due to excessive nuisance algal growth? (S. Exh. 10 at 4). ***Answer:*** *No...We have not seen any analysis, or even a comprehensive consideration of all of these factors that would enable discerning the relative influence of each on what happened to eelgrass in 2006.* (S. Exh. 11 at 2).

DO Impacts: Question #6: Have studies in either the Squamscott or Lamprey Rivers confirmed that algal growth in those rivers is the major cause of the periodic low DO observed in those rivers? (S. Exh. 10 at 4). ***Answer:*** *No...A 2005 study by Jones in the Squamscott River was designed to capture this latter condition by conducting river length surveys early in the morning under tidal conditions that were most frequently associated with lower DO levels. That study and a similar one (Jones 2007) did not reveal any extensive low (<5 mg/L) levels, and low DO levels that did occur were not correlated with chlorophyll a levels. (S. Exh. 11 at 2-3).*

whether the narrative criteria were or were not being attained. . ." DES Am. Br. at 2. This is a fabrication, as DES admitted, under oath, that these criteria do not provide a basis to prove that a narrative criteria violation has occurred:

> **Q.** Mr. Currier, you indicated that this analysis of light attenuation versus total nitrogen at trend stations, that this analysis doesn't prove causation, correct? **A.** Yes. **Q.** Okay. So is this analysis sufficient in your mind to determine that nitrogen is causing a violation of the narrative standard in that it doesn't demonstrate causation? **A.** It's not sufficient, no. (AR D.4.i.1 at 80 ln 14-23).

In addition, Philip Trowbridge also confirmed that the 2009 Numeric Criteria did not implement the state narrative standard:

> **Q.** ... Does this numeric nutrient criteria document from June 2009, is it DES's position that this document constitutes a demonstration that the narrative criteria for nutrients have been violated within the Great Bay estuary? **A.** Does that document? **Q.** Uhm-hmm. **A.** Demonstrate a violation? **Q.** Yeah; of the narrative standard? **A.** No. (AR D.4.i.4 at 332 ln 22 – 333 ln 8).

Thus, both Messrs. Currier and Trowbridge, under oath, admit that the basis for designating the estuary as impaired for nitrogen was not implementation of the narrative criteria, but rather the application of an unadopted numeric criteria. That state action, as well as EPA's reliance on that action in issuing the draft Newmarket permit, plainly violated applicable Federal law. *Infra,* at 6-9; Br. at 30-31.

1. Underlying Studies/Uncertainties and "Proof" (DES Am. Br. at 2 - 4)

Petitioners stated that underlying studies proving that water column transparency was not impaired due to nitrogen were not included in the 2009 Numeric Criteria document or in the subsequent peer review. Pet. at 13. The amicus brief now claims, with no supporting reference, that DES "decided not to use" these studies because "the data sets and methodology used in those graphs were both inconclusive and inadequate to reflect the complexity of the Estuary." DES Am. Br. at 2-3. However, Philip Trowbridge, author of the 2009 Numeric Criteria document, admitted in his deposition testimony (1) that DES simply excluded critical data and

analyses from the 2009 Numeric Criteria document, and (2) never claimed that any of the prior analyses were in error:

> **Q.** ... 2009 criteria document that you developed, that's a – you said you used a weight of evidence analysis to come up with the criteria in that report; right? **A.** Yes. **Q.** Did you include in that report the evidence that indicated that transparency was not the cause of eelgrass loss in the system that you had developed in any of your earlier analyses? **A.** What are you referring to for an earlier analysis? **Q.** That transparency, or analysis of transparency had not changed over time; was that included anywhere in that report? **A.** No. **Q.** What about all the statements that Great Bay is not a transparency-controlled system, from EPA and Dr. Short, and those are the ones you and I walked through in your first round of the deposition. Did you include the statements that Great Bay was not transparency-controlled? **A.** I'm not sure; I don't believe so. **Q.** Okay. What about the – did you include the statements that the cause of eelgrass losses and changes in the system were unknown, statements that were contained in the various 303d listing documents? **A.** Uhm, I have to look through. I'm not sure. I'm not seeing it here. **Q.** Did you include any of Morrison's conclusions that the major factors controlling transparency in the system were, in fact, turbidity and color-dissolved organic matter, and not chlorophyll? **A.** I believe we included equations from the Morrison study. **Q.** Did you highlight the Morrison study concluded that the transparency level of Great Bay was acceptable, and that you needed to look at something else as the cause of eelgrass demise? **A.** I'm not sure if we have that statement in here. **Q.** It's pretty important statement, isn't it? It made your report. Did you – well, did you include any discussion about how the primary graphs that you were using to develop the transparency and nitrogen relationships were merely correlations and did not demonstrate causation? **A.** I don't believe so. (AR D.4.i.4 at 436 ln 8 - 438 ln 9).

Thus, the amicus brief statements are complete and utter fabrications. Drs. Jones and Langan also confirmed conclusions from the previous studies and analyses for the estuary are still valid. *Supra* at 4, n.3. Moreover, the correspondence between EPA and DES acknowledged that the restrictive TN criteria, unlike the earlier assessment, was based on a confounded analysis that *did not* represent "cause and effect" in the system:

> The comment that seems the hardest to refute is that nitrogen is correlated with light attenuation. Nitrogen was not proven to be the causative agent for light attenuation. Moreover, nitrogen is a component of all the factors causing attenuation (phytoplankton, CDOM, particulate organic matter) so a correlation would be expected.

Pet. Exh. 6A- an email between Jim Latimer (EPA) and Philip Trowbridge on November 19, 2008. In addition, DES admitted that it knew that system transparency had never changed when it proposed the stringent transparency-based TN standards:

> **Q.** ... So you plotted the water quality -- water clarity data over time and then you showed some of the same regressions. And you showed the preliminary results, the Ru Morrison study, that chlorophyll-a is only eight percent of the transparency affecting the system. Now let's go to the conclusions. Can you read the first conclusion? **A.** Eelgrass biomass declining in Great Bay but no apparent decline in water clarity. *** **Q.** You've got water on the Piscataqua River which showed it didn't change over time. The only available data – do you have any other available data other than these data showing whether water quality changed over this 15-year period in the Piscataqua River and Great Bay where most of your eelgrass resources were? **A.** No. *** **Q.** So the only available data you have shows water clarity didn't change in the Piscataqua River and in Great Bay, right? **A.** Right. *** **Q.** So let me see if I understand this. You had specific data on Great Bay that said experts are telling you Great Bay's not a transparency issue, you have specific – the only data set you have for the entire system saying transparency didn't even change over time, you have other information confirming that the nitrogen loads did not even cause a significant change in phytoplankton growth, and you ignored all of that information and simply claimed you had a weight of evidence of something else unrelated to this system that said you needed to have these stringent numbers in place? Is that what you're telling me? I mean, I just need to understand because you've got specific data and analysis and you did it repeatedly – **A.** Hmm. **Q.** -- and it doesn't show up in that statement. **A.** Uh-huh. (AR D.4.i.3 at 227 ln 3-12; 230 ln 4-11 16-19; and 232 ln 22 – 233 ln 17).

Thus, the depositions confirmed that DES simply decided to ignore its own detailed assessments showing transparency was not the issue:

> **Q.** Okay. Was this moored array report part of the studies that you considered in order to determine what was affecting transparency in the system and why? **A.** Yes. **Q.** Did you include this as a reference in that 2009 criteria document? **A.** Yes. **Q.** Okay. I'm going to read it. Are you an author on this study? **A.** Yes. **Q.** I'm going to read you a quote from the report, page 51. The results of the – the results suggest that water clarity in Great Bay, Little Bay, and Lower Piscataqua River were sufficient for eelgrass growth. The virtual absence of eelgrass from all but Great Bay suggests that other processes apart from light restricted growth and are important for limiting eelgrass survival. Is that a false statement in this report? **A.** No. (*Id.* at 235 ln 18 -236 ln 17).

All of these critical analyses and findings were (1) absent from the 2009 Numeric Criteria document, and (2) withheld from the peer reviewers. These statements, the 2013 SOE Report, and underlying analyses confirm nitrogen did not cause the alleged eelgrass decline. *Accord,* S. Exh. 11. Nonetheless, DES also claims that the "peer reviewers" found the thresholds to be "reasonable and well-supported *by the data presented.*" DES Am. Br. at 3 (emphasis added). This purposefully misleading statement is not in accordance with counsels "duty of candor" as there is no indication of what "data" were "presented." The peer review was based on the assumption that nitrogen had changed phytoplankton levels in Great Bay causing lower water column transparency, which both DES and EPA knew had not occurred in this system:

> **Q.** So the only available data you have shows water clarity didn't change in the Piscataqua River and in Great Bay, right? **A.** Right. *** **Q.** And where do you have data, in Great Bay, do you have data showing increased nitrogen levels caused phytoplankton blooms which reduced water clarity in Great Bay? *** **A.** We don't have that information related to nitrogen causing phytoplankton blooms in the Great Bay Estuary. (AR D.4.i.3 at 230 ln 16-19, 123 ln 19 – 124 ln 1).

Thus, DES amicus brief claims (1) that "underlying studies" were not excluded from the 2009 Numeric Criteria document, and (2) that the 2009 Numeric Criteria document was not "based on erroneous technical assumption" (DES Am. Br. at 3) are demonstrably false. Its own scientist repeatedly admitted that actual data showed TN had not caused excessive algal growth or adverse changes in transparency in the system but that information was excluded from the 2009 Numeric Criteria document and from the peer review. Br at 87-91.

2. Impairments (DES Am. Br. at 3-4)

DES does not provide a single citation to support its claim that "much of the Great Bay Estuary is suffering from cultural eutrophication manifested by low dissolved oxygen in the Estuary's tidal rivers, increased macroalgae, and declining eelgrass." DES Am. Br. at 3-4. This is because such information does not exist, as independently confirmed by Drs. Jones and Langan

and 2013 SOE report. Philip Trowbridge confirmed the following, under oath, with respect to dissolved oxygen:

> **Q.** Can you tell me what kind of natural – what type of natural condition could cause low DO in the system? **A.** I think there are many, but I'm not sure exactly. *** **Q.** ... How can we know at this point in time how much of that low DO is caused by algal growth versus other factors if we haven't analyzed the other factors that affect DO in the system? **A.** We don't have the information to do that analysis. (AR D.4.i.3 at 39 ln 10-14, 44 ln 21 – 45 ln 4).[4]

DES had the results of the Jones studies on the Squamscott River confirming no apparent nutrient/algal relationship with low DO in that system. S. Exh. 22 at 3. Likewise, Philip Trowbridge confirmed that there is no demonstrated macroalgae impairment in Great Bay:

> **Q.** What about macroalgae impairments? Are they – are they documented in the Squamscott River, excessive macroalgae in the Squamscott, have you seen a report on that? **A.** No. **Q.** How about the Lamprey? **A.** No. *** **Q.** What about the Piscataqua, Upper or Lower, excessive macroalgae? **A.** I'm not sure. *** **Q.** ... Have any of the indicator reports ever addressed the extent of macroalgae growth in the system and whether or not it's causing an impairment? **A.** No. (*Id.* at 149 ln 21 – 150 ln 4; 150 ln 22 – 151 ln 1; 152 ln 13-16).

Mr. Trowbridge also confirmed that they do not know what caused the eelgrass changes in this system:

> **Q.** . . . There was a major decrease in eelgrass populations in Great Bay; right? **A.** You mean in 2006, 2007, 2008? **Q.** Yeah. Big Drop-off? **A.** Yes. **Q.** I mean, actually, would you describe that as a relatively dramatic drop-off? **A.** It was a -- I just say it's a large change. It was a large decrease. **Q.** A large decrease that happened quickly; right? **A.** Uhm-hmm. **Q.** Okay. That decline in eelgrass was basically used as the basis for updating the impairment listings for 2009 and thereafter to call Great Bay eelgrass – impaired for eelgrass; correct? **A.** Yes. . . . *** **Q.** Here's the question: That major decline you don't know what caused that in 2006, '7 and '8; right? **A.** Uhm-hmm. Yes. We do not know. **Q.** ... do we know what caused the decline in Portsmouth Harbor? **A.** No. **Q.** Okay. Do we have data showing that there's major increases in algal growth in Great Bay or the Portsmouth Harbor area occurring during this time? I suppose the answer's no, or we might have tagged that as a indicator of what was happening; right? **A.** You're referring to phytoplankton? **Q.** Phytoplankton, yeah. **A.** For phytoplankton, no,

[4] *See also* AR D.4.i.3 at 33 ln 2- 45 ln 4 - excerpt from Philip Trowbridge deposition going into further detail confirming the lack of data related to the periodically low dissolved oxygen in the Great Bay estuary.

there's no information. (AR D.4.i.4 at 369 ln 16 – 370 ln 8; 371 ln 16 – 372 ln 10).

Drs. Jones and Langan verify the accuracy of this statement. *Supra*, at 4 n.3. Thus, DES' amicus brief statements that this system suffers from "cultural eutrophication" and exhibits "classic symptoms" of excess nitrogen is not merely unsupported, it is demonstrably incorrect. The classic symptom, "excessive algal blooms," most certainly had not occurred. S. Exh. 11 at 1-2, S. Exh. 17 at 16. As demonstrated by Philip Trowbridge's testimony, these unsupported statements are simply fabrications that belie the factual record in an intentional attempt to bolster EPA's use of the 2009 Numeric Criteria development by DES.

3. Other Corrections

The following responses address the other "corrections" listed by DES on pages 5-7 of the Amicus Brief. Petitioners have only chosen a handful of the most relevant points to compare with the deposition testimony of Philip Trowbridge and Paul Currier, which directly and thoroughly contradicts what NHDES claims as factual "corrections" in its brief.

Correction #1. DES admits that microalgae (i.e., phytoplankton) have not increased but claims macroalgae have increased and, therefore, the transparency-based TN criteria are supported. DES Am. Br. at 1-2; Br. at 52-54. The position is facially absurd. The transparency criterion was based on water column effects.[5] However, macroalgae grow on the bottom and do not affect water-column transparency. Consequently, DES' attempts to defend the 0.3 mg/l TN "transparency-based" standard are plainly unsupported. DES Am. Br. at 5.

Correction #3. DES states that "light attenuation is a good indicator of eelgrass survival" in the Great Bay Estuary and "nitrogen is most likely the dominant cause of ... eelgrass declines." DES Am. Br. at 5, 6. First, as noted previously, NHDES admitted it has no idea what

[5] Even EPA agreed this action is not based on a macroalgae impacts as the principle concern. Resp. at 82

caused the major eelgrass declines in this system. *Supra*, at 9, 10; *accord*, S. Exh. 11 at 2. Second, Philip Trowbridge admitted that Great Bay is not a light-limited system (meaning light attenuation is essentially irrelevant for the vast majority of eelgrass habitat in the system):

> **Q.** You've got emails from Dr. Short, Phil Colarusso, Jim Latimer, I don't know what he's an expert on, all saying the same thing, the system is not a light-limited system, Great Bay. What information did you have that demonstrated that expert advice was incorrect? **A.** None. (AR D.4.i.3 at 211 ln 18 – 212 ln 3).

Thus, these amicus brief statements are pure fiction.

Correction #4. DES' claims that "unless nitrogen concentrations in the tidal rivers are reduced, eelgrass cannot be restored to its historic range in these rivers". DES Am. Br. at 6. This statement is another fabrication, in direct conflict with Philip Trowbridge's testimony that (A) tidal rivers cannot now support eelgrass populations, and (B) TN control is ineffective in the tidal rivers to restore eelgrass:

> **Q.** … Regardless of why the eelgrass are not there [in the tidal rivers] at this point in time, the transparency data shows it [i.e., the tidal rivers] cannot possibly support eelgrass at this time; right? That's what this data indicates? **A.** Uhm, at a – yes. … (AR D.4.i.4 at 429 ln 12-16).

> **Q.** … So controlling nitrogen to control chlorophyll in this system will not allow this water body to even come close to attaining the transparency level that is contained in the 2009 criteria; right? **A.** Based on this analysis, no. **Q.** All right. This data had been submitted to you and to EPA. Is there any basis that you know for claiming that the analysis presented in this graph is incorrect? *** **A.** No. (*Id.* at 423 ln 1-13).

> **Q.** [Do the] [d]ata or analyses that show you control nitrogen, you're going to fix that transparency problem, transparency issue in the Lamprey River? **A.** The answer is I don't believe so. It's the same issue as the Squamscott.(*Id.* at 432 ln 20 – 433 ln 1).

Paul Currier, Philip Trowbridge's supervisor, also confirmed there is no analysis showing TN control is significant to eelgrass restoration in the tidal rivers:

> **Q.** Back to my last question, though. Have you ever seen an analysis that shows regulating nitrogen for the tidal rivers, and I'll say upper Piscataqua, Squamscott

> and Lamprey will, in fact, result in a significant improvement in the transparency such that eelgrass can be restored? Has anybody ever showed you a site-specific analysis of the data for those sections that show that? **A.** No. **Q.** Okay. I hadn't seen it either. That's why I thought you might have seen it. **A.** I'm fairly sure it doesn't exist. (AR D.4.i.1 at 137 ln 12 – 138 ln 1).

Correction #7. DES claims it only used the 2009 Numeric Criteria in the preparation of § 303(d) list of impaired waters. DES Am. Br. at 6. The statement is also patently false. Under deposition, Philip Trowbridge and Paul Currier both admitted that the 2009 Numeric Criteria was used by DES to develop the 2010 Wasteload Allocation Report and that report was submitted to EPA to serve as the basis for setting more restrictive effluent limitations for the permits:

> **Q.** So the, again, the purpose of the wasteload allocation report was to determine how much reductions in nitrogen would be needed to meet the 2009 criteria? **A.** Yes. (AR D.4.i.4 at 285 ln 11-14).

> **Q.** And I'd like you to go back to the first page, where it's your e-mail where you're saying, "Hi Carl and Brian. Attached is a draft of the wasteload allocation." It's the very first thing. "I hope it will be useful in our consideration of the Exeter and subsequent permits." Was it—one of the purposes of developing this wasteload allocation was that it could be considered as a basis for setting the, whatever more restrictive permit limitations might be necessary in the next round of permitting? **A.** Yes. (AR D.4.i.1 at 139 ln 10-21).

Thus, DES' claim that the only action it took using the unadopted 2009 Numeric Criteria was to use those values in the impairment listing process is a complete fabrication.

Correction #8. While DES correctly states the *conclusion* of the October 19, 2012 letter from DES Commissioner Thomas Burack (AR H.43, DES Am. Br. at 7), DES fails to acknowledge that Commissioner Burack's letter admitted the scientific errors highlighted by the Petitioners' filing were accurate. The admitted scientific errors included: (1) admission that algal levels in the system [the Great Bay Estuary] did not change materially from 1980 to present, despite an increase in TN levels between 1980 and 2004 (AR H.43 at 1-2); (2) admission that transparency in the major tidal rivers (Squamscott, Lamprey, Upper Piscataqua) is poor, but the

available data (not previously analyzed by DES) shows that the effect of algal growth on transparency is negligible and that naturally occurring CDOM and turbidity are the key factors controlling transparency in the system (*id.* at 5); and (3) admission that Great Bay itself is generally not a transparency limited system because eelgrass receive sufficient light during the tidal cycle (*id.* at 7). It is these scientific errors, not the Commissioner's ultimate refusal to correct the 2009 Numeric Criteria, despite these errors, that controls the Board's review in this matter.

Moreover, DES' claim that the letter disagreed that "reducing nitrogen would have no material effect on transparency in tidal rivers" is materially incomplete and misleading. DES Am. Br. at 7. To the contrary, the letter, in fact states: "During the deposition, DES staff agreed that the graphs supported these conclusions [i.e. TN control would not materially alter transparency in the tidal rivers]." AR H.43 at 5. As noted earlier, both Paul Currier and Philip Trowbridge confirmed there is no analysis showing that TN control will materially improve the naturally poor transparency in the tidal rivers. *Supra*, at 11-12. This new attempt by counsel to discredit those admissions is baseless and must be rejected.

Conclusion

The DES amicus brief is materially misleading, unsupported by any referenced materials and contains statements of counsel that are directly at odds with documented DES sworn testimony from depositions over which DES counsel presided. The DES amicus brief provides no probative value to the Board's review.

Response to Amicus Brief of the Conservation Law Foundation, et al.

I. CLF Misstates The Controlling Factors for Review in This Case

NPDES permits are based on facts and scientific findings, not wishful thinking. It is most telling that CLF never disputes four key facts discussed in the Petitioners' brief:

1. The 2008 impaired waters list was modified based on an alleged CLF litigation threat, not a demonstration that nitrogen had actually caused the recent eelgrass decline (i.e., this was an illegal/unsupported impaired waters modification that was never reported to the public or included in the administrative record) (Br. at 8, 21, 44 n. 47; S. Exh. 2 attached email from G. Comstock to P. Trowbridge (Nov. 26, 2008));
2. Algal levels in the system have not changed significantly in the past 30 years; therefore, it is *impossible* for nutrients to have caused the eelgrass declines via a change in water column transparency (Br. at 26, 67);[6]
3. Studies confirmed that low DO in the tidal rivers were not caused by excessive algal growth (Br. at 11, 92 n. 80);[7] and,
4. The peer reviewers were not presented with the various studies and data confirming nitrogen and algal growth had not caused either low DO or transparency changes in this system (Br. at 37-38).[8]

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[6] CLF only notes that the 2013 SOE report indicates that "it can be difficult to detect trends based on monthly monitoring programs." CLF Am. Br. at 16. That only further underscores that there is no evidence that an algal-induced transparency problem exists in this estuary.

[7] While CLF supports EPA's claim that low DO in the tidal rivers is caused by nutrients and algal growth, EPA includes in the record, but never references the only studies that preformed a detailed assessment of this issue. AR K. 7-8, S. Exh. 22. In particular, the 2007 Jones study, funded by EPA, concluded: "The nutrient and chlorophyll *a* levels at the different sampling sites in the Squamscott River did not appear to have any discernible relationship with DO levels." AR K.7 at 3.

[8] CLF simply claims the Coalition communities had no right "to directly participate in the peer review." CLF Am. Br. at 19. They completely ignore the more basic claim that the peer review was purposefully biased by failing to provide essential studies and analyses directly addressing whether the nitrogen-related impairments assumed by the 2009 Criteria ever occurred in this system. (e.g., AR. K.7, S. Exh. 22, 2006-2007 TAC evaluations confirming TN has not caused transparency and algal growth changes over time and poor transparency was a natural condition).

In light of these unrefuted (actually irrefutable, given the record) facts, CLF employs a barrage of unsupported accusations including a "campaign of delay" (CLF Am. Br. at 4), "jeopardize health of the estuary" (*id.* at 5), that Petitioners are only offering "competing scientific and technical opinions" (*id.* at 6). First, none of CLF's statements are supported by relevant or competent information from the estuary. Second, this case is not about competing scientific theories, it is about EPA and DES expressly ignoring the documented facts regarding whether or not nitrogen loadings have triggered certain events in this estuary. As discussed in *Upper Blackstone,* EPA receives minimal deference on the existence of objectively ascertainable facts. *Upper Blackstone Water Pollution Abatement Dist. v. Envtl. Prot. Agency*, 690 F.3d 9 (1st Cir. 2012), CLF Am. Br. at 6, n.3.[9] In this case, "objectively ascertainable facts" would include: did the data confirm that algal levels increased significantly in Great Bay and Lower tidal rivers over time, did the data confirm that transparency decreased significantly in Great Bay and Lower Tidal river over time, did any study confirm that low DO in the tidal rivers is caused by elevated algal growth, was the EPA "peer review" presented with all of the relevant scientific information and studies for the estuary). The "factual" answer to each of these questions is "no". Thus, this is not a case where the Board must be "most deferential" to EPA's various claims, as CLF asserts. EPA's actions must be "rational and supportable" in light of the facts and available

[9] CLF cites to *Balt. Gas & Elec. Co.* for the proposition that courts should be most deferential to an agency decisions at the frontiers of science. Balt. Gas & *Elec. Co. v. Natural Res. Def. Council, Inc.*, 462 U.S. 87 (1983), CLF Am. Br. at 6, n.3. However, the Court in *Balt. Gas & Elec.*, noted that the agency cannot ignore the relevant information and the Court must "determine whether the [agency] has *considered the relevant factors* and articulated a rational connection between the facts found and the choice made." 462 U.S. at 105 (citing *Bowman Transp., Inc. v. Arkansas-Best Freight System, Inc.* 419 U.S. 281, 285-96 (1974) (emphasis added); *Citizens to Preserve Overton Park, Inc. v. Volpe,* 401 U.S. 402 (1971); *see also Limerick Ecology Action, Inc. v. United States Nuclear Regulatory Com.,* 869 F.2d 719, 740 (3rd Cir. 1989) (citing *Balt. Gas & Elec.*in overturning an agency determination and finding that an agency's failure to consider the relevant information is even more troubling in situation requiring special expertise). In addition, the court in *Am. Farm Bureau Fed'n v. Envtl. Prot. Agency* indicated that, although EPA gets deference pertaining to its technical expertise, the Court must "ensure that the EPA has examined the relevant data and has articulated an adequate explanation of its action." 559 F.3d 512, 519 (D.C. Cir. 2009) (citing *City of Waukesha v. EPA*, 320 F.3d 228 (D.C. Cir. 2003)). Here, EPA deserves no deference as the data and analyses are clear: nutrients are not causing impairment in this system.

scientific information. *Id.* No deference is given to EPA when EPA simply ignores facts. *Home Box Office, Inc. v. Fed. Commc'n Comm'n*, 567 F.2d 9, 54 (D.C. Cir. 1977); Pet Reply at 25.

II. EPA's Misapplication of § 122.44(d) is also not subject to deference

CLF regurgitates EPA's claim that 40 C.F.R. § 122.44(d) allows it to find waters nutrient impaired by applying an unadopted numeric criteria via Section 122.44(d)(1)(vi) in place of the adopted narrative criteria. CLF Am. Br. at 12. The federal register notice to § 122.44(d) explained that in applying narrative criteria, "EPA emphasizes however, that scientifically valid procedures must be used to develop criteria that protect aquatic life and human health." 54 Fed. Reg. 23873, 23876 (June 2, 1989). Thus, there first must be an objective, clear scientific basis *from this estuary* to conclude nitrogen caused the loss of eelgrass (by triggering excessive algal growth) to insist that major reductions in nitrogen are needed to protect and restore eelgrass populations from that threat. A "scientifically valid" approach would necessarily demonstrate, with some degree of certainty that (1) nitrogen increased, (2) algal growth increased, (3) transparency decreased, and (4) this algal-induced transparency decrease was sufficient to cause the rapid decline in eelgrass that occurred in 2006. It deserves noting that nowhere in the CLF brief is this factual claim made; neither is it made in the "expert" report prepared by Dr. Valiella. That of course, is because the data does not support that any of these demonstrations occurred in the estuary. *See* S. Exh. 11, *supra* at 4; S. Exh 17 at 14, 16, 20. Consequently, this is not a "decision within EPA's area of special expertise, at the frontiers of science".[10] Thus, again, the Board should find EPA's action to be "clear error" based on a "simple finding of fact" requiring no "deference to EPA." CLF Am. Br. at 6, n.3 (citing *Baltimore Gas & Elec.*, 462 U.S. at 103).

[10] The only "special expertise" EPA has employed in this case is an ability to "hide the ball." That is regulatory brinkmanship; not scientific expertise.

Petitioners have also repeatedly specified that EPA committed procedural errors in using an unadopted criteria to declare the waters in violation of the narrative standard. At least DES admitted what it had done. DES Am. Br. at 3. CLF has provided no response – that action is patently illegal:

> ... EPA believes the combination of a narrative standard along with a translator mechanism as a part of a State's water quality standards can satisfy the substantive requirements of the Clean Water Act. Such translators would need to be subject to all the State's legal and administrative requirements for adoption of standards plus review and either approval or disapproval by EPA, and result in the development of derived numeric criteria for specific section 307(a) toxic pollutants.

57 Fed. Reg. 60847, 60873 (Dec. 22, 1992). Moreover, as noted by Petitioner response, Section 122.44(d) does not provide EPA the authority to jump over Section 303(c) adoption and approval process by simply invoking Subsection (vi) of that rule and creating a new numeric criteria to make impairment determinations:

> Some commenters questioned how paragraph [122.44(d)(1)] (ii) relates to the other paragraphs added to § 122.44(d)(1). The requirements of paragraphs (iii), (iv), (v) or (vi) apply *after* the permitting authority has determined that water quality-based effluent limits are necessary under (ii).

54 Fed. Reg. 23873 (June 2, 1989) (emphasis added). Thus, the federal NPDES rule is also structured to ensure that the adopted narrative criteria demonstration applies to the impairment/threat determination, not some numeric substitute. Petitioners have repeatedly observed that, under § 122.44(d) it is irrational to regulate a pollutant that (1) did not cause the effect of concern (*i.e.*, change in water column transparency); (2) can't materially improve the alleged concern (*i.e.*, transparency in the tidal rivers); or (3) is based on a "conceptual model" known to not apply in this system (*i.e.*, nitrogen does not stimulate significant excess algal (phytoplankton) growth in this system). These factual points controlling the need for nitrogen

limitations in this case under the applicable state narrative standard, were verified by numerous independent sources: (1) the depositions of Philip Trowbridge (AR D.4.i.3-4); (2) the data analyses conducted under the PREP Technical Advisory Committee from 2006-2008 (Pet. Reply at 13); (3) the analyses of HydroQual (AR H.4); (4) the 2006 State of the Estuary Report (AR K.17); (5) the 2013 State of the Estuary Report (S. Exh. 17); (6) the affidavit of Steven Chapra (S. Exh. 19); and (7) the letter from Professors Jones and Langan (S. Exh. 11) that specifically detailed what research has been done and the conclusions of such research with regards to these issues. The record confirms that there is no valid scientific or factual basis for the proposed nitrogen limitations.[11] Consequently, there is no "agency expertise" involved – the agency simply sought to ignore the repeated scientific findings and data reports showing that nitrogen had not caused any narrative criteria violation and to keep that information out of the administrative record. The agency receives no "special expertise" deference for such actions. *Home Box Office, supra* at 17.

III. The Only Obfuscation that has occurred was perpetrated by EPA and CLF

CLF claims that Petitioners' brief presents "a troubling disregard of …basic requirements… to identify and present issues clearly". CLF Am. Br. at 7. In particular, CLF expresses confusion over the factual assertions presented on page 19-20 of our brief. *Id.* at 7, n.4. The Board should note that CLF does not claim a single statement is actually incorrect, which can only mean that they know the statements are true; they are attempting to get the Board to ignore them by misdirection. CLF itself acknowledged that sufficient information was provided to locate the specific record quotes. CLF Am. Br. at 7, n.4 ("it refers the Board

[11] EPA plainly relied on DES and DES relied on the PREP studies. There is no other "independent" source of information or analysis. S. Exh. 20 at 1 ¶4.

generally to its August 30, 2012 supplemental comments").[12] To avoid any further "confusion", again, the specific deposition quotes supporting each position follow:

1. ***Phytoplankton levels in the Estuary have not materially changed over the last 30 plus years despite the apparent increase in nitrogen levels known to stimulate algal growth.***

   Q. ... [F]or the data that are available, does it support the hypothesis that nitrogen is causing phytoplankton blooms which are reducing water clarity to a great degree? Do the data show that? **A.** The data—the trend analysis, which doesn't show any kind of increased trend, does not support that hypothesis. (AR D.4.i.3 at 127 ln 15-22; *Supra* at 9, AR D.4.i.3 at 230 ln 16-19, 123 ln 19 – 124 ln 1).

2. ***Transparency levels in the Estuary have not materially changed over the last 30 plus years.***

   Q. So the only available data you have shows water clarity didn't change in the Piscataqua River and in Great Bay, right? **A.** Right. AR D.4.i.3 at 230 ln 16-19. **Q.** So if the phytoplankton levels didn't change, phytoplankton could not have caused a change in transparency; correct? **A.** Uhm, yes. **Q.** "Yes," meaning correct, right? **A.** Yes. (AR D.4.i.4 at 344 ln 8-13).

3. ***Great Bay is not a water column light-limited system.*** *Supra* at 11, AR D.4.i.3 at 211 ln 18 – 212 ln 3.

4. ***Data for the tidal rivers shows that transparency cannot be achieved regardless of TN reductions by wastewater treatment facilities due to natural conditions, algal growth impact on transparency in tidal rivers is negligible and TN control will not materially improve transparency in the tidal rivers.*** *Supra* at 12, AR D.4.i.4 at 423 ln 1-13; *supra* at 12, *id.* at 432 ln 20 – 433 ln 1.

5. ***Recent DIN levels in the Estuary have decreased to levels measured in the 1970s.***

   DIN is the most reactive form of nitrogen. The long-term trend for all of the data collected between 1974 and 2011 shows an average increase of 68% for DIN. The DIN concentrations in the last three years fell below the average trend line to 0.116 mgL. These levels are comparable to the DIN concentrations that were measured for some of the years in the 1970s. (S. Exh. 17 at NUT 2-2 to 2-3).

[12] EPA was contacted on several occasions asking if there are any problem locating the relevant deposition quotes. AR D.1-3. EPA never indicated any concerns over this issue until its Response to Comments was published. Apparently EPA was trying to preserve an argument rather than ensure that it fully understood the facts.

6. ***Narrative criteria violations and implementation must be based on a cause-and-effect demonstration that the nutrient in question caused "cultural eutrophication" which in turn caused an impairment to the system biota.***

> **Q.**...If the situation were that transparency were poor but wasn't caused by the nitrogen component, you could say that you have an eelgrass impairment but not a nitrogen- induced eelgrass impairment... **A.** That's correct ...you would have to do further causation analysis to figure out what was causing the lack of eelgrass. (AR D.4.i.1. at 133 ln 22 – 134 ln 11).

7. ***The 2009 Numeric Criteria were based on the "assumption" that TN caused a major change in transparency due to increased algal growth, not a "cause and effect" demonstration that such events actually occurred. Therefore the 2009 Numeric Criteria do not represent a finding about the degree of TN that causes a narrative criteria violation under existing state rules and the criteria are not based on a "cause and effect" relationship, which is needed to find a narrative criteria violation.*** (*Supra* at 5, AR D.4.i.1 at 80 ln 14-23; *supra* at 5-6, AR D.4.i.4. at 332 ln22 -333 ln 8).

8. ***The relevant information DES/PREP analyses that evaluated whether (a) TN increases had caused changes in transparency, algal levels or DO and (b) a "cause and effect" relationship between TN and transparency/DO existed, were excluded from the technical information presented in the 2009 Numeric Criteria document and, therefore, were never presented to EPA's peer review panel.*** *Supra* at 7, AR D.4.i.4 at 436 ln 8 – 438 ln 9).

These are undisputed, well-documented factual statements and therefore the Board must accept them as true in rendering its decision on this petition.[13]

IV. Petitioners are Challenging EPA and CLF's Purposeful Disregard of the Best Available Science Confirming Nitrogen Induced Impacts Never Occurred

Cloaking themselves in the *Upper Blackstone* decision and platitudes such as "proceeding in face of scientific uncertainty", CLF asserts none of Petitioners' claims are valid and all deference must be given to EPA. CLF Am. Br. at 5,6. The record, however, is replete

[13] *See Am. Registry of Radiologic Technologists v. Bennett*, 655 F. Supp. 2d 944, 946 n.2 (D. Minn. 2009) ("It is well established that a party concedes an issue by failing to address it in an opposing brief."); *Hopkins v. Women's Div., Bd. of Global Ministries*, 238 F.Supp.2d 174, 179 (D.D.C. 2002) ("It is well understood in this Circuit that when a plaintiff files an opposition to a motion to dismiss addressing only certain arguments raised by the defendant, a court may treat those arguments that the plaintiff failed to address as conceded") (*citing FDIC v. Bender*, 326 U.S. App. D.C. 390, 127 F.3d 58, 67-68 (D.C. Cir. 1997); *Day v. D.C. Dep't of Consumer & Regulatory Affairs*, 191 F.Supp.2d 154, 159 (D.D.C. 2002) ("If a party fails to counter an argument that the opposing party makes in a motion, the court may treat the argument as conceded).

with documents confirming EPA knew that nitrogen never caused excessive algal growth or "cultural eutrophication" but, like CLF, refused to let the facts get in the way of the intended result.[14] Obviously, if CLF thought there was a firm factual basis confirming widespread "cultural eutrophication " due to nitrogen loadings, they would have identified those specific records. Of course, because such documents do not exist, they have not identified any records. To the degree CLF argues that EPA may regulate based on speculation of impacts and ignore the data showing such events did not occur, that is misplaced "ends justify the means" thinking not authorized by the Act:

> Clearly, EPA's mandate to establish standards 'adequate to protect public health and the environment from any reasonably anticipated adverse effects of each pollutant'... does not give EPA blanket one way ratchet authority to tighten standards. (citations omitted) 'Statutes do more than point in a direction, such as more safety. They achieve a particular amount of that objective at a particular cost in other interests.'

Leather Indus. of Am. v. Envtl. Prot. Agency, 40 F. 3d 392, 401 n. 14 (D.C. Cir. 1994). As with *Leather Indus.*, where the data do not show the pollutant has actually reached a level that causes impairment, freezing the current loads (or worse yet, as in this case, demanding major reductions) is not authorized by the CWA. *Id.* at 401 ("The conclusion that current sludge composition is safe absent a showing that the alternative sludge composition would not be safe does not justify the mandate to freeze current sludge quality.").

V. CLF's Burack Letter Observations are Equally Misplaced (CLF Am. Br. at 13-15)

CLF likewise claims we provide a "gross mischaracterization" of the Burack letter (AR H.43) are unsupported – even DES's amicus brief made no such claims. DES Am. Br. at 11.

[14] On the heels of the Morrison study confirming that transparency was not the issue (which simply verified the results on the earlier TAC analyses), Al Basile of EPA asks DES to specifically identify Great Bay as impaired due to transparency. S. Exh. 7. The email explains the reason for the request – this will foster "nutrient" regulation.

What Petitioners noted was that the attachment to the Burack letter followed DES' consistent pattern of providing justification for its continued support for the 2009 Criteria document by:

a. Either acknowledging or not denying the specific statement made under oath by DES officials that was the predicate for the question posed;

b. Discussing some other, non-controlling issue that does not directly affect whether or not the 0.3 mg/l TN transparency-based criteria is still defensible (e.g., claims of excessive macroalgae growth may be occurring), and,

c. Then simply disagreeing that the criteria should be withdrawn.[15]

Petitioners noted that the specific factual agreements within the attachment to the Burack letter control the Board's review, not the self-serving conclusory refusal to withdraw the criteria in the face of admitted scientific error. Br. at 32-33. CLF's comments are therefore misplaced and provide no relevant insight regarding the significance of the Burack letter.

VI. CLF Comments Regarding the 2013 State of the Estuaries Report are Dissembling

The most abusive attempt to misdirect the Board from the documented factual conclusions is associated with the CLF's rebuttal on the 2013 SOE report. CLF Am. Br. at 16-18, S. Exh. 17. Petitioners did not "distort" or "mischaracterize" the findings of the report, as confirmed by the University of New Hampshire professors (who were part of the PREP Technical Advisory Committee). S. Exh. 11. To be sure, the report contained other observations

[15] CLF provides an excellent example of this on page 15 regarding "Claim #3". DES first agrees that Great Bay is not water column transparency limited and verified that "direct exposure to sunlight at low tide" is "one reason that eelgrass still exists in Great Bay proper." This verified that Claim #3 was correct. And therefore, one would not apply a water column transparency based criteria to these waters. However, DES goes to note that other areas of the system may be transparency-limited – unremarkable but irrelevant to Great Bay proper which was where DES was applying the transparency-based criteria. The quote ends with the observation that "in shallower areas, overgrowth and smothering by macroalgae and cellular disruption may be the immediate cause of eelgrass loss." Another irrelevant, if not obviously speculative observation, as (1) The 0.3 mg/l TN criteria were derived to attain a specific level of water column transparency, not a specific level of macroalgae control; (2) the record confirms there is no documented smothering of eelgrass beds (AR D.4.i.3 at 156 ln 21 – 157 ln 5); and (3) macroalgae growth is ephemeral and the degree to which it is causing any adverse environmental impacts is not known (AR D.4.i.3 at 149 ln 21 -151 ln 1, S. Exh. 17 at 44; S. Exh. 11 at 3).

and qualifications but these do not change the factual reality of the points presented in Petitioners' Brief. The fact that microalgae (phytoplankton or algal blooms) are "episodic and variable in size" (CLF Am. Br. at 16)[16], does not mean that the long term average algal levels at Adams Point used to assess changes in algal growth over the past 30 years are misplaced or unreliable. Drs. Jones and Langan, who spearheaded the PREP TAC for the 2013 SOE report, observed the following with respect to the *entire estuary:* "there are no places where we are aware of documented increasing phytoplankton populations , and in many places chlorophyll 'a' remains present at very low levels." S. Exh. 11 at 2. As far as "downplaying concerns regarding macroalgae" again, the CLF missive misses its mark. CLF Am. Br. at 16-17. The PREP report notes changing macroalgae levels but no one knows their significance or permanence. AR D.4.i.3 at 149 ln 21 – 150 ln 4; 150 ln 22 – 151 ln 1; 152 ln 13-16, *supra* at 10. Again Drs. Jones and Langan observed: "There are sparse data on macroalgae biomass trends, the little available data, along with many anecdotal accounts, suggest increases have occurred, although it is well accepted that macroalgae blooms are ephemeral and unpredictable…No studies have demonstrated mechanisms for macroalgae growth causing decreases in eelgrass populations." S. Exh. 11 at 3. This is why the 2013 SOE report calls macroalgae an "emerging concern." Petitioners also verified that the area macroalgae growth highlighted by EPA, basically disappeared in 2012. Pet. Exh. 20A – 20H. Even EPA agrees that the basis for issuing this permit is not macroalgae concerns. Resp. at 82. Petitioners have not mischaracterized or misrepresented, in any way, the conclusions of the 2013 SOE report, which speak for themselves. The 2013 SOE report conclusions (independently confirmed by the letter from Drs. Jones and Langan) verify EPA's claims of widespread cultural eutrophication are baseless.

[16]Attempting to generate a "fear factor" seems to be a well-honed skill by CLF. However, fears are not facts as President Roosevelt so eloquently stated.

VII. CLF's Arguments Regarding Peer Review are Shameless Given CLF's Role in the Illegal Modification to the Impairment Listing[17]

CLF's assertions regarding the adequacy of the 2010 peer review are simply the testimony of counsel, and therefore have no weight. *Supra*, at 3-4. First, regarding claims of EPA following "accepted protocols" (CLF Am. Br. at 19), it is hardly acceptable to eliminate and/or downplay the conflicting studies and data analysis (e.g., AR --Jones 2005, 2007, 2008, Pennoch (2005), Morrison (2008)) when conducting the peer review. The fact that EPA did not inform the peer reviewers that they knew the conceptual model was inapplicable to this estuary but nonetheless designed the 2009 Nutrient Criteria around that plainly non-applicable model boarders on malfeasance. That action is not consistent with any peer review protocols.

The observations of Valiella and Kenney, as noted in Petitioners' Brief, are pure guilt by association. Br. at 25 n.29. Their report contains no analysis of the relevant field data, which probably assisted CLF in getting this report from them. If such analysis had been undertaken we cannot imagine these experts issuing an opinion in direct conflict with the data or the observations of Drs. Jones and Langan, who have decades of direct, personal experience in assessing Great Bay waters. In fact, the Valiella report conclusion cited by CLF, that the proposed approach for "Great Bay estuary are supported by other studies in other New England estuaries and can serve as a sound basis for permitting decisions..." (CLF Am. Br. at 19) was directly contradicted by earlier PREP, EPA and DES evaluations. For example, the 2006 SOE report confirmed that this estuary did not respond as other New England estuaries respond:

> Researchers are still debating the possible effects of the increasing DIN concentrations on Great Bay because it is a unique system, both hydrodynamically and biologically, that may respond differently to excess nitrogen than other estuaries. *So far, the typical effects of excess nitrogen have not*

[17] CLF nowhere addresses that Section 101(e) of the Act mandates that EPA provide for public involvement when it is amending standards and issuing permits. Cutting the public out of the peer review and then claiming the results were unassailable (EPA Resp. at 73-76) certainly violated this provision of the Act.

been observed in Great Bay, although DIN concentrations in Great Bay are similar to concentrations in other estuaries where negative effects have been clearly observed.

AR K.17 at 12 (emphasis added). Likewise, the analysis of system data performed by Trowbridge, Morrison, Latimer, Pennock, Langan, and Short confirmed that this estuary was plainly different from the other New England estuaries. Pet. Exh. 13C. Apparently CLF's experts hadn't familiarized themselves with any of these relevant assessments. To quote Dr. Chapra:

> In summary the analysis presented in the document entitled "Numeric Nutrient Criteria for the Great Bay Estuary" (2009) are (1) not based on methods generally accepted by the scientific community, (2) are contrary to the methods published in dozens of treatises on this topic (3) utilize obviously incorrect and physically impossible relationships attributed to algal growth and nitrogen influences and (4) are so thoroughly confounded and unexplained as to render them worthless for the purposes of numeric nutrient criteria development. (S. Exh. 19 at 10).

To the degree CLF is trying to set up "the battle of the experts" it is essential that the experts all render their decisions on the relevant information from the estuary. The only experts that did that were HydroQual, Chapra, Langan and Jones. Valiella and Kenny basically did a literature survey – which is not a basis for declaring that a regulatory approach is necessary for a specific water body – obviously.

For the reasons discussed herein and previously, this petition for review should be granted.

Respectfully submitted,

Date : Mar 8 2013

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CERTIFICATION OF SERVICE

I hereby certify the copies the Petitioners' Response to Amicus Briefs of New Hampshire Department of Environmental Services and Conservation Law Foundation, Town of Newington, and New Hampshire Audubon Amicus brief in connection with NPDES Appeal No. 12-5 and to Strike said Amicus Brief, were sent to the following persons in the manner indicated:

By Electronic Filing:

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