



**Save the Sound**<sup>®</sup>

Action for our region's environment.

**By: Email (Comment.NYCWRRFs@dec.ny.gov)**

Donald Klaczko  
New York State Department  
of Environmental Conservation  
625 Broadway  
Albany, New York 12233

February 15, 2022

**Re: Comments on Nitrogen Limits in Draft SPDES Permits for New York City  
Department of Environmental Protection Wastewater Resource Recovery Facilities  
Discharging into the East River**

Dear Mr. Klaczko:

Save the Sound, respectfully submits these comments regarding the SPDES Permit Application and Department Initiated Modification to the State Pollutant Discharge Elimination System Permits ("Permits") for the fourteen New York City Department of Environmental Protection Wastewater Resource Recovery Facilities ("WRRFs") and in particular for the nitrogen effluent limits for the six WRRFs discharging to the East River.

## **SUMMARY**

Based upon the Clean Water Act and the requirement to set limits that will not cause or contribute to an exceedance of water quality standards, we urge DEC and EPA to impose meaningful additional nitrogen limits on the total discharge from the six NYC East River Sewage Treatment Plants. The science shows, and the agencies have acknowledged, that the permitted levels of nitrogen discharge from the plants is leading to harmful algal blooms, loss of tidal wetlands and eelgrass, coastal acidification and low oxygen in the East River and Western Long Island Sound. The discharges have caused or contributed to parts of the East River and Western Long Island Sound exceeding water quality standards 90-100% of years between 2014 and 2019. While New York City is working on refined modeling that will inform long term planning, there is more than enough information to require immediate reductions by **(1) requiring the four upper East River plants to use existing nitrogen technology to achieve further reductions and (2) requiring Newtown Creek to install nitrogen reducing technology.** Once new modeling and science is developed, the permit may be re-opened to impose final, more refined, long term nitrogen limits. The potential for future action, however, must not serve as a barrier to the short term reductions in this permit that are required by law.

## **The 2000 TMDL**

In 2000, the EPA, New York and Connecticut agreed on an enforceable plan called a Total Maximum Daily Load (TMDL) that required sewage treatment plants throughout the Long

Island Sound watershed to reduce their discharges of nitrogen. Nitrogen is a natural compound, but when discharged in large quantities it causes eutrophication (excess nutrients) and hypoxia (low oxygen) while leading to loss of tidal wetlands and ocean acidification. The nitrogen fuels growth of algae which eventually decomposes and draws oxygen from the water. In its extreme form, this can create oxygen-starved dead zones where aquatic life cannot live. It also increases chlorophyll a which leads to the opaque green color and stops needed sunlight from getting into the water enhancing all of these impacts, each of which compromises Long Island Sound's ability to support aquatic life.

The 2000 TMDL required a 58.5% reduction in discharge of nitrogen from sewage treatment plants in Connecticut and New York. It required more mild reductions from Massachusetts and Vermont, which discharge nitrogen into the Connecticut River that is eventually transported to Long Island Sound, though there is some attenuation due to the distance. By 2017, both Connecticut and New York had met the 58.5% reduction requirement. It is clear, however, that while we have seen improvement, the East River and Western Long Island Sound is still unable to fully support aquatic life due to excess nitrogen and is failing to meet water quality standards.

### **The Nitrogen Reduction Strategy**

In 2015, realizing that the initial requirements of the TMDL were coming to an end and that the waterbody remained (and would continue in the future to be) impaired due to continuing contributions of nitrogen from sewage treatment plants and other sources, EPA initiated what is known as the "Nitrogen Reduction Strategy." The Nitrogen Reduction Strategy was released in the form of a 2015 letter from EPA Region 1 and 2 Administrators to New England Administrators<sup>1</sup> ("*Nitrogen Reduction Strategy Cover Letter*") and the Nitrogen Reduction Strategy itself which was attached to that letter ("*Nitrogen Reduction Strategy*").<sup>2</sup> In these documents, EPA concluded that nitrogen pollution was continuing to cause low oxygen, algae blooms and other water quality problems and committed to studying Long Island Sound to determine what additional nitrogen reductions from which sources are necessary to return the waterbody to health.

This conclusion is based upon, and consistent with, the best scientific data. The Long Island Sound Study ("LISS") is a partnership between EPA, New York and Connecticut and studies hypoxia and oxygen levels generally throughout Long Island Sound. In reports dating back to 1994 and up to the present, LISS has consistently documented hypoxic conditions in Long Island Sound.<sup>3</sup>

Save the Sound issues a Long Island Sound Report Card that characterizes the chronic poor water quality conditions in the narrows due to excess nitrogen entering the waters from

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<sup>1</sup> <https://longislandsoundstudy.net/wp-content/uploads/2016/02/LIS-Nitrogen-Strategy-Cover-Letter-final-12-23-15.pdf>,

<sup>2</sup> <https://longislandsoundstudy.net/wp-content/uploads/2016/02/LIS-Nitrogen-Strategy-Enclosures-12-23-15-1.pdf>

<sup>3</sup> "Frequency of Hypoxia." *Long Island Sound Study*, US EPA, 19 May 2021, <https://longislandsoundstudy.net/2020/03/frequency-of-hypoxia-2/>.

wastewater treatment facilities and other sources<sup>4</sup>. Grades in the Long Island Sound Report Card are formulated using a scientifically-defensible method developed by numerous stakeholders around the Sound. This portion of Long Island Sound has received an F for water quality from 2008-2019.

### **Nitrogen Permit Limits for the East River Plants**

While fertilizers and septic systems are a more significant part of the problem in the Eastern Long Island Sound, the largest remaining source of nitrogen pollution into the East River and Western Long Island Sound are point sources such as the New York City sewage treatment plants. *Nitrogen Reduction Strategy, WLIS Coastal Watershed with Large, Direct Discharging Wastewater Treatment Facilities*, at p. 1. While these plants made reductions as part of the 2000 TMDL, there are still far more substantial reductions that could be achieved. The EPA has taken several steps forward in developing the Strategy but has not yet completed it.

The limits for the six East River plants remain unchanged from the previous permits that were designed to meet the aggregate 58.5% nitrogen reduction from the 2000 TMDL. The SPDES permits place the sewage plants that discharge into the East River into two zones: zone 8 and zone 9. Zone 8 is comprised of Bowery Point, Hunts Bay, Tallman Island, and Wards Island. Zone 9 is made up of Newtown Creek and Red Hook. This amount is comprised of, “The LISS Zone 8 + 9 Aggregate is defined as the sum of the Zone 8 Aggregate and one-fourth of the Zone 9 Aggregate.” SPDES Permit for Hunts Point, NYDEP 1, 10 (Footnote 4). Footnote 7 on page 10 discusses the annual average limit for total nitrogen for zones 8 + 9 and the reasoning behind the limit given. The annual average limit is 46,468 lbs/day.

The 58.5% reduction for all six plants was achieved primarily by installing nitrogen treatment at the four upper East River, or Zone 8, plants. Taking into account the adjustment for distance and impact on East River and Western Long Island Sound water quality, 30% of the remaining nitrogen load is coming from one of the plants that did not receive the upgrades to treat nitrogen, Newtown Creek. . Save the Sound (Vaudrey), *New York City Nitrogen Report: East River and Long Island Sound* (2017) p. 23.<sup>5</sup> Thus, additional needed reductions could be achieved through getting a higher reduction using the already installed treatment equipment at the Zone 8 plants and by requiring installation of nitrogen removing technology at the Newtown Creek Plant. *Id.*

### **EPA’s Nitrogen Reduction Strategy Documents a Reasonable Potential for WQS Exceedance**

If a permit has the “reasonable potential” to cause or contribute to an exceedance of a water quality standard, the permit must contain water quality-based effluent limitations for the pollutant. 40 C.F.R. § 122.44(d)(1)(i), (iii)-(vi), 33 U.S.C. § 1311(b)(1)(C). The process for how water quality based effluent limits are set is laid out in *Upper Blackstone Water Pollution Abatement Dist. v. U.S. E.P.A.*, 690 F.3d 9 (1st Cir. 2012) (“*Upper Blackstone*”). The case dealt with a challenge by the wastewater treatment plant and a local environmental group to the

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<sup>4</sup> “Long Island Sound Report Card.” Save the Sound, <https://www.savethesound.org/report-card>.

<sup>5</sup> <https://www.savethesound.org/wp-content/uploads/2018/03/NYC-Nitrogen-Report-East-River.pdf>

nitrogen limits set in its NPDES permit by the EPA. *Id.* at p. 11. The court upheld the limitations the EPA placed in the permit despite the fact that a formal TMDL had not been prepared. *Id.* When setting limits, the permit issuer looks to see if the current discharge limits may cause a violation of water quality standards. *Id.* at 22. In this determination, permit issuers look to the scientific record as well as the possible effects of holding off on limiting discharges. *Id.* at 23.

The EPA *Nitrogen Reduction Strategy* unambiguously concludes that the permitted nitrogen discharges from the six East River plants have the reasonable potential to cause or contribute to continuing water quality exceedances and, in fact, are doing so on a continuing basis. The December 23, 2015 cover letter which initiated the strategy states,

The implementation of the [TMDL] has resulted in significant progress toward reducing dissolved oxygen (DO) impairments in the open waters of the sound.

...

**Despite this progress, there is more to do. It is clear based on monitoring and modeling that current and planned actions by the states will fall short of fully implementing the 2000 TMDL and will be insufficient to address other adverse impacts to water quality in Long Island Sound, and its embayments and near shore coastal waters.**

*Nitrogen Reduction Strategy Cover Letter* (December 23, 2015).<sup>6</sup>

The *Nitrogen Reduction Strategy* itself made clear conclusions. It created 3 distinct technical approaches for various areas of the Sound. The first two, not involved here, focused on locally impaired bays and harbors and nitrogen from the major riverine systems feeding into Long Island Sound such as the Connecticut River and the Housatonic. The third is the one relevant here and dealt with “WLIS Coastal Watershed with Large, Direct Discharging Wastewater Treatment Facilities.” *Nitrogen Reduction Strategy*, Technical Approach Fact Sheet #3 WLIS Coastal Watersheds with Large, Direct Discharging Wastewater Treatment Facilities. (“Fact Sheet #3”).<sup>7</sup>

Fact Sheet #3 states that total N concentrations of .45 mg/l are protective of dissolved oxygen (DO) standards and .34 mg/l are protective for eelgrass. *Id.* Yet, the TN concentrations at the Narrows (station A4) range from 1.1-0.7 mg/l, significantly higher than the top of the range. *Id.*

The *Nitrogen Reduction Strategy* then goes on to address the precise issue DEC and EPA must consider in this permit – whether current permit levels, based on the 2000 TMDL, will achieve compliance with water quality standards. The *Nitrogen Reduction Strategy* states:

**While the wasteload allocations (WLA) for the wastewater treatment facilities in the LIS TMDL are forecasted to improve water quality, current modeling does not predict eventual attainment of water quality standards as a result of achieving these**

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<sup>6</sup> <https://longislandsoundstudy.net/wp-content/uploads/2016/02/LIS-Nitrogen-Strategy-Cover-Letter-final-12-23-15.pdf>

<sup>7</sup> <https://longislandsoundstudy.net/wp-content/uploads/2016/02/LIS-Nitrogen-Strategy-Enclosures-12-23-15-1.pdf>

**and other TMDL allocations. . . . Current N removal performance at wastewater treatment facilities would be considered to identify opportunities for additional actions that would help support attainment of the N threshold.**

*Id.*

There is substantial evidence to support the above statement. The numeric water quality standards currently applicable to East River require that dissolved oxygen (“DO”) shall not be less than 4.0 mg/L at any time.<sup>8</sup> Long Island Sound is classified as Class SB waters, for which DO shall not be less than a daily average of 4.8 mg/L and shall not be less than 3.0 mg/L at any time.<sup>9</sup> The LISS has documented large portions of the East River and Western Long Island Sound violating these standards 90 to 100% of the time between the years 2014 and 2019.<sup>10</sup>

Based upon the best science, the *Nitrogen Reduction Strategy* proposed a schedule moving forward to (1) determine appropriate nitrogen thresholds for aquatic life support, (2) identify wastewater discharge levels that would not exceed those levels, and (3) initiate a permitting strategy and point source allocations to achieve such levels. *Id.* The permit strategy was supposed to be completed by 2017 (meaning new nitrogen effluent limitations for the six East River plants were supposed to be developed by 2017). While it is now 2022 and the process has still not completed, there is more than enough information at this point to establish water quality based near term nitrogen reductions while waiting for the completion of the process to establish final long term reductions.

In a report that was finalized in 2020, the Long Island Sound Study, as part of the *Nitrogen Reduction Strategy*, set target concentration in the East River and narrows of between .24 mg/l and .41 mg/l. *Summary of establishing nitrogen endpoints for three Long Island Sound watershed groupings.*<sup>11</sup> As pointed out in the initial *Nitrogen Reduction Strategy* document, the current concentrations of nitrogen in this area ranges from 1.1 to .7 mg/l vastly exceeding healthy levels. Thus, evidence is there today that DEC and EPA must require nitrogen reductions to begin reaching these nitrogen targets as well as the currently applicable DO water quality standards.

The final effluent limits for the East River and Western Long Island Sound have not been completed because New York City requested that they be allowed to engage in a several year modeling exercise to determine optimal levels of nitrogen reductions for the long term. That study is due to be completed in 2025, three years from now and 8 years after the original deadline in the *Nitrogen Reduction Strategy*. As discussed above, evidence has existed, and been credited by EPA, NY and CT, since at least 2015 that the NYC plants are causing or contributing to non-achievement of currently applicable water quality standards. The fact that science is evolving and is getting better is no excuse for failing to take action now.

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<sup>8</sup> 6 CRR-NY 703.3.

<sup>9</sup> *Id.*

<sup>10</sup> <https://longislandsoundstudy.net/2020/03/frequency-of-hypoxia-2/>

<sup>11</sup> [https://longislandsoundstudy.net/wp-content/uploads/2020/10/Subtask-F-G-Empirical-Modeling-and-N-Target-Concentrations\\_combined.pdf](https://longislandsoundstudy.net/wp-content/uploads/2020/10/Subtask-F-G-Empirical-Modeling-and-N-Target-Concentrations_combined.pdf).

The *Upper Blackstone* decision dealt with this precise issue. The Upper Blackstone Water Pollution Abatement District (“District”) argued that EPA erred by refusing to delay the permit until the District could complete its facility upgrade and a new water quality model. The court found that the nitrogen limits based on the current information were appropriate even if there may be better or more precise information in the future. *Id.* at 23. Examples of the types of scientific data used include models, state reports on nitrogen loadings, water quality studies, national guidance, and response variables. *Id.* at 26. These models also do not have to match real life circumstances perfectly but do need to be scrutinized by the public and the scientific community. *Id.* at 27.

This principle was also recently reiterated by the Environmental Appeals Board in the context of nitrogen discharges from sewage treatment plants into Long Island Sound. In *In re: Springfield Water and Sewer Commission*, NPDES Appeal No. 20-07 (EAB 2021), EPA imposed water quality based nitrogen limits onto the Springfield Water and Sewer Commission (SWSC). The SWSC argued that EPA could not impose additional permit limitations that were above and beyond the 2000 LIS TMDL wasteload allocations or targets. The EAB rejected that argument noting that water quality based permit limits need not be identical to wasteloads established pursuant to TMDLs and that permit issuers could deviate from a TMDL based upon new information. *Id.* at 41. Similar conclusions were reached in *In re City of Homedale Wastewater Treatment Plant*, 16 E.A.D. 421, 426 (EAB 2014) and *In re City of Moscow*, 10 E.A.D. 135, 148 (EAB 2001) both of which were cited as authority in the Springfield decision.

## Conclusion

It is clearly documented by EPA, Long Island Sound Study and others that the nitrogen limits imposed in the 2000 TMDL and reflected in the six draft East River permits will not achieve water quality standards. The current nitrogen concentrations in the East River (1.1 - .7 mg/l) are almost double the target range EPA has established (.41 - .24 mg/l) and leading to violations of current water quality standards for DO 90-100% of years from 2014 to 2019. Thus, by failing to require science based nitrogen reductions, the six East River sewage plant permits are in violation of 33 U.S.C. § 1311(b)(1)(C) and 40 C.F.R. § 122.44(d)(1)(i).

DEC should work with EPA, DEP and stakeholders to arrive at meaningful near term nitrogen limits which can then be refined and strengthened upon the conclusion of additional modeling. This can be done by requiring the four upper East River plants to seek further reductions from their existing nitrogen treatment technology or to require Newtown Creek to install nitrogen reducing technology.

Sincerely,



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