EARTHJUSTICE
BECAUSE THE EARTH NEEDS A GOOD LAWYER

July 8, 2021

via email to waterlog@dec.ny.gov
NYS Department of Environmental Conservation
Division of Water
Bureau of Water Resource Management
625 Broadway
4th Floor
Albany, NY 12233-3508

Re: Comments from Seneca Lake Guardian on Draft Cayuga Lake Phosphorus TMDL

Dear Division of Water,

The following comments regarding the Draft Cayuga Lake Phosphorus Total Maximum Daily Load ("Draft TMDL") are submitted by Seneca Lake Guardian and the Committee to Preserve the Finger Lakes, local groups who are dedicated to protecting water quality and recreation in the Finger Lakes. They are joined in submitting these comments by advocates from across the state and around the country who are deeply concerned about the problems with the Draft TMDL and what implications this document and its approach may have to water quality in their communities. These additional signers include the Waterkeeper Alliance, Sierra Club—Atlantic Chapter, Hudson Riverkeeper, NY/NJ Baykeeper, Atchafalaya Baskinkeeper, Friends of Hurricane Creek, San Antonio Bay Estuarine Waterkeeper, Twin Harbors Waterkeeper, Cahaba Riverkeeper, Gunpowder Riverkeeper, Spokane Riverkeeper, Suwanee Riverkeeper, Three Rivers Waterkeeper, and Professor Todd Ommen—Elizabeth Haub School of Law and PACE Environmental Litigation Clinic, Inc.

For more than two decades, Cayuga Lake has suffered from an overgrowth of plants and algae, which interferes with recreation in the lake. While Seneca Lake Guardian appreciates that the Department of Environmental Conservation ("DEC") has taken steps to fulfill its legal requirements to develop a plan to reduce Phosphorus pollution in order to bring Cayuga Lake into compliance with its water quality standards, the Draft TMDL falls short of meeting the legal requirements necessary to be approved as a valid TMDL under the Clean Water Act. In support of our comments, we have attached a Declaration by water quality and TMDL expert Barry Sulkin. We ask DEC to voluntarily withdraw the Draft TMDL and to make corrections to it sufficient to create a legal TMDL. If DEC refuses to do so, we ask EPA to disapprove of the TMDL.[1]

[1] 40 C.F.R. § 130.7(d)(2).

I. The Draft TMDL Fails to Provide Reasonable Assurances That the Nonpoint Source Reductions Will Occur and Will Lead to Achievement of Water Quality Standards and Therefore the Draft TMDL Must Be Modified to Maximize Point Source Reductions.

A. TMDLs That Set Wasteload Allocations Based on the Assumption That Nonpoint Source Reductions Will Occur Must Provide "Reasonable Assurances" That the Reductions Will Actually Occur.

TMDLs require identification of the amount of loading of a particular pollutant that will lead to compliance with narrative and numeric water quality criteria and designated uses, and prevent degradation.[2] A TMDL must then allocate that pollutant load between point sources (Wasteload Allocation), nonpoint sources (Load Allocation), a margin of safety, and future growth.[3] The Clean Water Act requires a TMDL to set water quality-based effluent limits for all point sources for the pollutant(s) at issue. Under 40 C.F.R. §130.2(i), "[i]f Best Management Practices ("BMPs") or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent." In order to allow less stringent wasteload allocations, EPA has determined that:

> when a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, the TMDL must provide 'reasonable assurances' that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable.[4]

EPA's guidance explains "Where there are not reasonable assurances, under the [Clean Water Act], the entire load reduction must be assigned to point sources."[5]

B. The Draft TMDL Fails to Provide Reasonable Assurances.

The Draft TMDL fails to provide "reasonable assurances" that the nonpoint source reduction will be achieved.[6] The Draft TMDL points to existing programs that have been operating and have been unable to stem the nonpoint source runoff polluting Cayuga Lake. The Draft TMDL provides no explanation of how these same voluntary programs will suddenly reduce Phosphorus runoff to a level where Cayuga Lake will attain applicable water quality standards.[7]

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[2] *See* Declaration of Barry W. Sulkin ¶12, attached hereto as Attachment A ("Sulkin Declaration").
[3] *See* Sulkin Declaration ¶12.
[4] Letter from Curtis Spalding, EPA Reg'l Adm'r, to Deborah Markowitz, Sec'y of Vt. Agency of Nat. Res. 8 (Jan 24, 2011) ("Vermont TMDL").
[5] EPA, *Guidance for Water Quality-Based Decisions: The TMDL Process* 1, 15 (1991) https://www.epa.gov/sites/production/files/2018-10/documents/guidance-water-tmdl-process.pdf.
[6] Sulkin Declaration ¶13.
[7] *See id.*

For example, the Draft TMDL points to the 2010 New York State Dishwasher Detergent and Nutrient Runoff Law. That law went into effect August 14, 2010 after being signed by Governor Paterson on July 15, 2010. It restricted the sale of detergents containing Phosphorus and the sale and use of Phosphorus-contained fertilizers on non-agricultural lawns and turf beginning January 1, 2012.[8] The Draft TMDL asserts "[t]hrough the implementation of this law, water quality will improve for recreational and other uses of the state's waters, including Cayuga Lake."[9] The Dishwasher Detergent and Nutrient Runoff Law has been in effect for almost a decade. Any reductions in stormwater runoff will have already been achieved. This law does not provide for any new reductions in Phosphorus from stormwater runoff.[10]

The Draft TMDL's implementation section copies its priority list nearly verbatim from the Harmful Algal Bloom Action Plan for Cayuga Lake, with identical timeframes. The Harmful Algal Bloom Action Plan was finalized in 2018, meaning the priority actions for the first three years should be well underway. The fact that the Draft TMDL's implementation section parrots those same priority actions and timelines reflects the lack of progress on these actions to date. Without identifying new regulatory or financial drivers that will make implementation of these measures actually occur in 2021 even though they have not been completed when they were identified in 2018, the implementation plan does not provide "reasonable assurances" that these measures will be implemented and that Phosphorus reductions necessary to achieve water quality standards will occur.[11]

C. The Draft TMDL's Approach to "Reasonable Assurances" is Similar to the Approach EPA Rejected in the 2002 Lake Champlain Phosphorus TMDL.

The Draft TMDL's approach to "reasonable assurances" is similar to the approach Vermont used in its 2002 Lake Champlain Phosphorus TMDL. EPA ultimately rejected that TMDL, in part for its failure to provide reasonable assurances that the nonpoint source reductions would occur and water quality standards would be attained.[12] EPA noted that the Vermont TMDL's implementation plan "contains descriptions of additional programs and a variety of recommended actions."[13]

Just like the Vermont TMDL's implementation plan, the Draft TMDL's implementation section has the fatal flaw that "[n]early all elements of the plan depend on both additional funding and entities' willingness to participate or cooperate voluntarily with the intent of the program…."[14] For example, the Draft TMDL recognizes that "implementation relies upon voluntary installation of BMPs by local stakeholders and compliance with the conditions of the CAFO SPDES General Permits."[15] However, the Draft TMDL has assumed that none of the CAFOs contribute Phosphorus to the lake because their permits already prohibit discharges to the lake.

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[8] *See* Text of Nutrient Runoff Law; https://www.dec.ny.gov/chemical/74956.html.
[9] Draft TMDL at 72.
[10] *See* Sulkin Declaration ¶14.
[11] *Id.* ¶17.
[12] *See* Vermont TMDL.
[13] *Id.* at 11.
[14] *Id.*
[15] Draft TMDL at 51.

D. DEC Must Provide Reasonable Assurances or Reassign the Entire Load Reduction to Point Sources.

In order to include nonpoint source reductions in the Draft TMDL, DEC must point to something new or different, above and beyond the measures the community and nonpoint sources have been implementing for years, that will show how the nonpoint sources will actually be reducing Phosphorus to the level necessary to comply with the TMDL. If DEC cannot make those assurances, it must assign the entire load reduction to point sources.[16]

II. The Draft TMDL Selects a Water Quality Target That Does Not Ensure That Water Quality Standards Will Be Attained and Maintained.

Recreational uses in the Southern End of Cayuga Lake are impaired by periodic algal blooms and dense aquatic plant growth along the shoreline. Clean Water Act regulations mandate that "TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical [water quality standards] with seasonal variations and a margin of safety…."[17] DEC has determined that Phosphorus is the cause of the impairment of the Southern End of Cayuga Lake and the reason the segment fails to meet New York's narrative nutrient standard. Because New York does not have a numeric water quality standard, the TMDL attempts to "translate[] the narrative water quality standard for nutrients into the numeric water quality targets for Chlorophyll-a ("Chl-a") for each segment in Cayuga Lake."[18] The numeric target should represent the point at which the water segment will attain its designated uses and will no longer be impaired. The Draft TMDL fails to comply with this regulation because it sets the water quality target at a level at which the lake fails to meet the narrative water quality standard for nutrients.[19]

A. New York's Lack of Numeric Nutrient Standards Requires the Draft TMDL to Identify Its Own Numeric Standard.

New York's lack of numeric nutrient standards means that the Draft TMDL needed to identify a numeric water quality target that would act as a surrogate for the narrative standard and would signal the endpoint for water quality improvements that would coincide with compliance with the narrative water quality standard.[20] While New York has a Phosphorus "guidance level" of 20 ug/L, the Draft TMDL rejected that numeric target because the impaired Southern End was, in most years, already meeting that standard and still had an overgrowth of plants and algae impairing recreation.[21]

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[16] *See The TMDL Process*, supra note 5; *see also* EPA, *Follow-up to WDD Hot Issues Discussion on Reasonable Assurance in TMDLs* (Feb. 15, 2012), https://www.epa.gov/sites/production/files/2020-07/documents/supplemental_information_for_tmdl_reasonable_assurance_reviews_feb_2012.pdf.
[17] 40 C.F.R. 130.7(c)(1).
[18] Draft TMDL at 5.
[19] *See* Sulkin Declaration ¶33.
[20] *See* Draft TMDL at 26.
[21] *Id.* at 11.

B. The Draft TMDL Selects a Numeric Chlorophyll-A Water Quality Target Even Though Phosphorus Loading to Cayuga Lake and Chlorophyll-A Levels Are Not Correlated.

Instead of examining the appropriateness of adopting a more stringent Phosphorus water quality target, like the 15 ug/L guidance level used for NYC drinking water reservoirs,[22] the Draft TMDL crafted a water quality target "based on summer average Chl-a concentrations" and "on the most conservative best use for each lake segment."[23] In selecting a Chl-a target for the Draft TMDL, DEC recognized it was "necessary to develop a correlation between the TP loading and the Chl-a numeric representation concentration."[24] EPA has cautioned that "[t]he relationship between nutrient concentrations and chlorophyll response… may be highly variable and difficult to predict."[25] Indeed, DEC's own data reflect that there is not a correlation between summer mean epilimnetic Total Phosphorus concentrations and Chl-a levels. *See fig. 1.*

1. There is no relationship between mean summer Total Phosphorus concentrations and mean summer Chl-a concentrations in the observed data, while the Draft TMDL is built on the premise that these two values should be tightly coupled.

The Draft TMDL is based on the premise that mean summer Chl-a concentrations are coupled to mean summer Total Phosphorus (TP) concentrations, such that a reduction in TP loadings will result in a reduction in Chl-a concentrations. This relationship is critical to interpreting reductions in Chl-a as an indication of compliance with TP loading capacity. The Draft TMDL directly states that, "[c]ompliance with the TP loading capacity will result in achievement of the Chlorophyll-a water quality target and, thus, the applicable narrative water quality standard."[26] The Draft TMDL identifies Chl-a as an indication of algal growth in response to Phosphorus loading in the summer season and specifically indicates that a correlation between these two values was necessary to identify:

> Chlorophyll-a is an indicator of algal growth within a lake and is, therefore, a measure of ecosystem response to phosphorus loading. Since phosphorus has been identified as the limiting pollutant during the summer season when algal blooms occur, **it was necessary to develop a correlation between the TP loading and the Chl-a numeric representation concentrations.**[27]

Despite the critical importance of this relationship, the Draft TMDL does not report this suggested correlation. In fact, no such correlation exists in the reported mean summer data for the Impaired Segment of Cayuga Lake in Table 15 of the Draft TMDL. *See fig.1.* In addition,

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[22] New York Nutrient Standards Plan (2011) at 2; *https://www.dec.ny.gov/docs/water_pdf/nutrientstds2011.pdf*
[23] *Id.*
[24] *Id.* at 26.
[25] EPA, 841-B-99-007, *Protocol for Developing Nutrient TMDLs* 1, 4-6 (1999), https://nepis.epa.gov/Exe/ZyPDF.cgi/20004PB2.PDF?Dockey=20004PB2.PDF ("Nutrient TMDLs").
[26] Draft TMDL at 35.
[27] *See* Draft TMDL at 26 (emphasis added); *see also* Draft TMDL app. A at A7, "Use the (slope of the regression) relationship between mean Chl-a and mean TP in combination with the 50% prediction interval to establish possible stressor criteria based on best-fit."

there is not a statistically significant relationship between mean summer TP and mean summer Chl-a in the data reported in Table 15. In fact, there is a (non-significant) downward trend in the observed relationship between mean summer Chl-a concentrations as a function of mean summer TP concentrations. This trend is driven in part by the fact that the year with the highest TP loading (27 µg/L in 2013) had one of the lowest Chl-a concentrations (4.4 µg/L).

While the suggested relationship between mean summer Chl-a concentrations and mean summer TP concentrations is not supported by the provided data, the model is structured to predict strong coupling between these two variables. *See fig.2.* The model suggests Chl-a and TP are tightly coupled with a highly significant relationship and positive correlation.

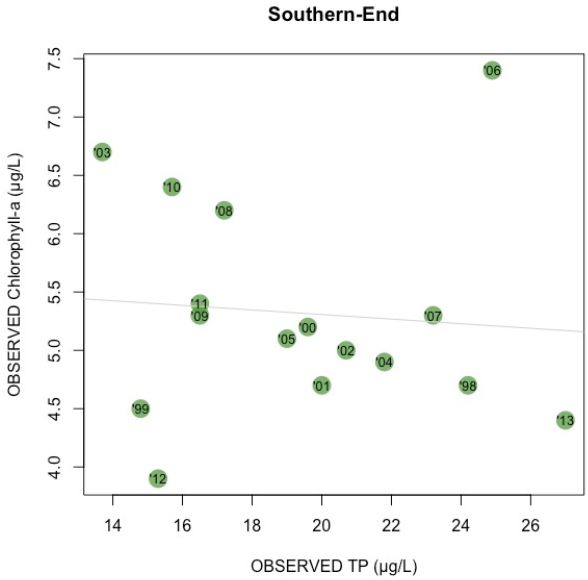

Figure 1: Observed Chl-a versus TP.[28]

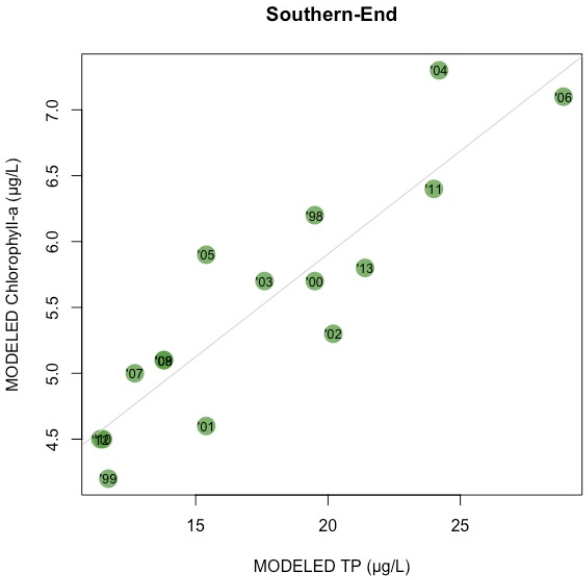

Figure 2: Modeled Chl-a versus TP.[29]

Light gray line shows line of best fit. For the observed relationship between Chl-a and TP (fig.1), there is neither a correlation nor a significant linear relationship between Chl-a concentrations and TP concentrations (y = -0.02x+5.7, adj R^2=-0.06, p=0.75). In contrast, the model predicts a strong increasing linear relationship in Chl-a as a function of TP concentrations (right; y = 0.16x + 2.8, adj R^2=0.8, p<0.001).

This disconnect between the observed data and modeled relationship is a clear indication that the model fails to capture observed dynamics in Chl-a and TP. In order to continue to use Chl-a as an indicator of the impact of TP loadings on Cayuga Lake, the TMDL must address the lack of correlation in these variables in the observed data and justify the use of a model which creates such a relationship contradictory to the observed data. DEC should explore whether the choice of an alternative sub-annual timescale, improvements in measurement approaches for capturing Chl-a concentrations, selection of an alternative indicator, or improvements in model

[28] Draft TMDL at 36.
[29] *Id.*

calibration allow the TMDL to more accurately represent the impact of TP loadings on water quality.

2. The Cayuga Lake Model fails to predict observed mean summer Chl-a concentrations.

The Cayuga Lake Model is used to estimate Chl-a concentrations under various TP loading scenarios. The Draft TMDL arrives at the recommendation of a 30% reduction in TP loadings based on model outputs indicating that such a reduction would result in achieving mean summer Chl-a concentrations below the threshold of 6 µg/L in most years. However, the Cayuga Lake Model as calibrated in the Draft TMDL cannot be used to predict mean summer Chl-a concentrations. The model as presented in the Draft TMDL does not have the predictive capacity to reliably estimate Chl-a concentrations that would result from such a reduction in TP loadings.

In the data reported in the Draft TMDL,[30] there is not a significant statistical relationship between observed mean summer Chl-a values and modeled mean summer Chl-a data (p=0.26). Furthermore, there is no correlation between the model and the observations for Chl-a (Adjusted $R^2 = 0.02$). *See fig.3.* Therefore, the model fails to predict observed mean summer Chl-a concentrations. Plainly, the Cayuga Lake Model performs no better at predicting mean summer Chl-a concentrations for a given year than a random simulation of values ± 50% of mean summer Chl-a concentrations across the years analyzed. By relying exclusively on a ± 50% acceptable error threshold for model performance evaluation[31], the Draft TMDL fails to ensure that model predictions are correlated with observed data.

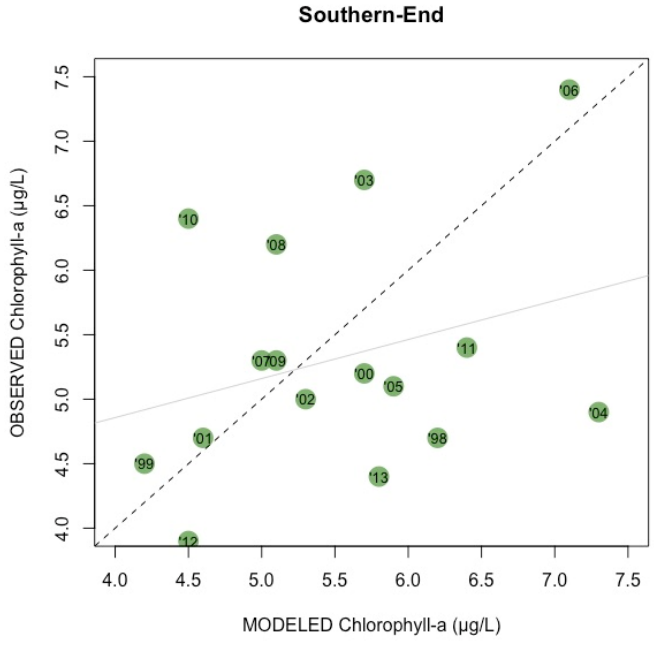

Figure 3: Observed Chl-a versus Modeled Chl-a.[32]

[30] *See* Draft TMDL at 36 tbl.15.
[31] *Id.*
[32] *Id.*

The dashed line shows the 1:1 line. All points would fall on the dashed line for a perfect model. Points above the dashed line are years in which the model underestimates values. Points below the dashed line are years in which the model overestimates values. The solid light gray line is the line of best fit between the observed data and the modeled data. (Chl-a line of best fit: $y=0.3x+3.6$; adj $R^2= 0.02, p=0.26$.)

While the model may potentially have better correlations to observed data at sub-annual scales, the Draft TMDL indicates that mean summer Chl-a concentrations "are the critical conditions for the Cayuga Lake TMDL to ensure that the best uses are restored and protected in Cayuga Lake."[33] As reported in the Draft TMDL, the model cannot be used to reliably predict Chl-a concentrations, and therefore cannot be used to predict expected Chl-a concentrations under alternative loading scenarios.

C. The Chlorophyll-a Level Selected in the Draft TMDL Improperly Addresses Potential Drinking Water Concerns, Not the Actual Nutrient Impairment.

The Draft TMDL relies heavily on the proposition that a Chl-a target designed to protect drinking water by reducing "the potential production of disinfection by-products in finished drinking water" is the same value of Chl-a that will attain and maintain the narrative nutrient standard and achieve the recreation designated use by reducing shoreline algal and plant growth.[34]

A Chl-a level protective of drinking water does not automatically mean that it will allow Cayuga Lake to attain and maintain its recreational designated uses. Even though a drinking water designated use is often considered a "higher" designated use than recreation and often requires more stringent water quality parameters than to protect recreation use, those assumptions are not universal truths. Indeed, the Citizens Statewide Lake Assessment Program (CSLAP) report from 2017 demonstrates that Cayuga Lake can be supporting drinking water designated uses while recreation designated uses are impaired or stressed.[35]

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[33] *See* Draft TMDL at 35; *see also* justification for annual data on TP:

> Lakes and reservoirs store phosphorus in the water column and sediment; therefore, water quality responses are generally related to the total nutrient loading occurring over longer time scales (i.e., years). For this reason, phosphorus TMDLs for lakes and reservoirs are generally calculated on an annual basis. USEPA guidance supports the use of annual loads, versus daily loads, as an acceptable method for expressing nutrient loads in lakes and reservoirs (USEPA 1986 and USEPA 1990). While daily loads have been calculated, the Cayuga Lake TMDL (Section 4, Tables 11-14) includes TP annual loading capacity to guide implementation efforts and because the pollution reduction efficiencies from implementation of the best management practices (BMPs) are expressed on an annual basis. Compliance with the TP loading capacity will result in achievement of the Chlorophyll-a water quality target and, thus, the applicable narrative water quality standard.

Id.

[34] Draft TMDL at 36.

[35] *See* CSLAP, *Report Site 2 (S)* 4 (2017).

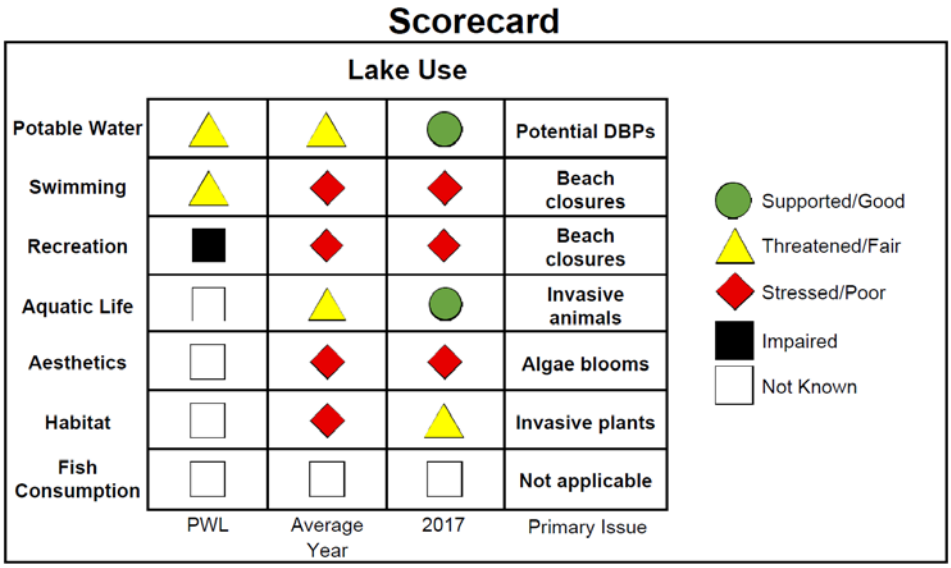

Figure 4: Lake Use.[36]

In order to justify the use of Chl-a as a valid water quality target for Cayuga Lake, the Draft TMDL would need to explain how its 6 ug/L Chl-a water quality target would ensure the Southern End will attain and maintain its water quality standards. However, as water quality expert Barry Sulkin notes, "The Draft TMDL fails to demonstrate a correlation between Total Phosphorus—which it claims is driving plant and algae growth in Cayuga Lake—and Chl-a in Cayuga Lake that would justify a Chl-a water quality target in order to attain the narrative nutrient water quality standard."[37]

D. The Open Water Sampling Locations from the Southern End of Cayuga Lake Already Meet the Water Quality Target.

Data used by the Draft TMDL itself demonstrate that the open water sampling locations from the Southern End of Cayuga Lake already meet the 6 ug/L water quality target. The observed summer mean Chl-a data for the Southern End segment reflect that the segment is already meeting the 6 ug/L Chl-a water quality target and is still impaired. Specifically, the average observed Chl-a for years 1998-2013 was 5.3 ug/L, below the 6 ug/L target.[38] The segment had Chl-a levels below 6 ug/L for 12 of the 16 years DEC shared observed data.[39]

E. The Draft TMDL's 6 ug/L Chlorophyll-a Water Quality Target for the Southern End Segment Fails to Meet Legal Requirements.

DEC should have selected a numeric water quality target that is ***below*** the level the impaired segment is already meeting. By picking a numeric water quality target that the segment

[36] *Id.* at 4.
[37] Sulkin Declaration ¶ 34.
[38] *See* Draft TMDL at 36 tbl.15.
[39] *Id.*

is already achieving even though the segment is still impaired means that the TMDL fails to meet the regulator requirement that "TMDLs shall be established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards" as the Clean Water Act requires.[40]

III. The Draft TMDL Makes Assumptions Not Supported by Evidence in The Record.

The Draft TMDL relies on several assumptions that are not supported by evidence in the record. Taken together, these assumptions undermine the entire foundation of the Draft TMDL and render it insufficient.

A. The Draft TMDL Incorrectly Assumes That CAFOs Do Not Contribute Phosphorus to Cayuga Lake.

Concentrated animal feeding operations ("CAFOs") are industrial animal production facilities that raise hundreds or even thousands of animals in confinement.[41] New York has approximately 500 CAFOs, the majority of which are dairy operations with 300 or more cows.[42] An average dairy cow produces approximately 120 pounds of manure a day[43]; as a result, New York's dairy CAFOs produce enormous volumes of animal waste, which is high in nitrogen and Phosphorus. As DEC has acknowledged, each dairy CAFO has the "pollution potential of a major sewage treatment plant" serving a large city.[44] But unlike major sewage treatment plants, which decompose and often disinfect human waste so that it does not pollute waters, CAFOs usually hold animal waste in huge open-air pits and then, absent any significant prior treatment, apply the waste to fields.

DEC regulates water pollution from CAFOs under two general permits: the Clean Water Act CAFO SPDES General Permit ("CWA CAFO General Permit") and the Environmental Conservation Law CAFO SPDES General Permit ("ECL CAFO General Permit").[45] CAFOs that

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[40] 40 C.F.R. § 130.7(c).

[41] *See* 40 C.F.R. § 122.23(b)(2) (finding that a concentrated animal feeding operation is an "animal feeding operation" ("AFO") surpassing certain size thresholds); *see also* an AFO:

> means a lot or facility . . . where . . . (i) [a]nimals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12–month period, and (ii) [c]rops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Id. § 122.23(b)(1); Under federal law governing dairy CAFOs, a "Large CAFO" houses 700 or more mature dairy cows and a "Medium CAFO" houses 200 to 699 mature dairy cows. 40 C.F.R. § 122.23(b)(4), (6).

[42] *See Concentrated Animal Feeding Operations,* DEC, https://www.dec.ny.gov/permits/6285.html (last visited July 1, 2021).

[43] *Liquid Manure Storage Ponds, Pits, and Tanks*, Livestock & Poultry Env't Learning Cmty., https://lpelc.org/liquid-manure-storage-ponds-pits-and-tanks/ (last updated Mar. 5, 2019).

[44] DEC, *Final Phase I Nutrient and Sediment Water Quality Improvement and Protection Plan* 18 (2010), http://www.dec.ny.gov/docs/water_pdf/finalphaseiwip.pdf.

[45] *See* DEC, GP-0-19-001, CWA SPDEA General Permit for Concentrated Animal Feeding Operations (CAFOs) (2019), https://www.dec.ny.gov/docs/water_pdf/cafogp019001permit.pdf ("CWA CAFO General Permit"); DEC, GP-0-16-001, ECL SPDES General Permit for Concentrated Animal Feeding Operations (CAFOs) (2017) https://www.dec.ny.gov/docs/water_pdf/eclcafopermit(1).pdf ("ECL CAFO General Permit").

discharge pollutants must obtain coverage under the CWA CAFO General Permit.[46] Only CAFOs that are designed, constructed, operated, and maintained *not* to discharge may operate under the ECL CAFO General Permit.[47]

The CWA CAFO General Permit provides more protection against nutrient pollution than the ECL CAFO General Permit, as it establishes more rigorous requirements for each CAFO's site-specific plan for managing and disposing manure and process wastewater, also known as the CAFO's nutrient management plan ("NMP"). Under the CWA CAFO General Permit, NMPs must "ensure appropriate agricultural utilization of the nutrients" in land-applied manure or wastewater.[48] In other words, NMPs must ensure that CAFO operators do not apply more nutrients than crops can utilize, a practice that allows unutilized, excess nutrients, to run off fields into surface water, leach through soil into groundwater, and convert to gas that is later deposited into surface water. Before CAFO owners or operators can obtain coverage under the CWA CAFO General Permit, they must submit their NMP to DEC for review.[49] Following DEC's review, the NMP is available for a 30-day public review and comment period.[50] These review periods allow DEC and the public to evaluate whether CAFO NMPs contain adequate provisions to prevent nutrient discharges.

By comparison, under the ECL CAFO General Permit, NMPs are subject to less rigorous requirements. Under the ECL CAFO General Permit, NMPs must require land applications of waste to be planned according to the Natural Resources Conservation Service NY590 Standard, which sets out criteria and considerations for managing land-applied nutrients; and CAFO operators must "manage application rates and timing so as to prevent runoff from leaving crop fields during any application event."[51] Directing that runoff must be prevented *during* application does not prevent runoff *following* application. Indeed, in comments on DEC's 2015 Draft CWA CAFO General Permit, which contained the same requirement, EPA advised DEC that the requirement "does not give reasonable assurance that there will be appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater and that NMPs will be developed accordingly."[52] In other words, the requirement does not ensure that all the nutrients that CAFO operators apply to land will be utilized by crops, and it absolves CAFO operators of responsibility for runoff following land application.

The ECL CAFO General Permit also does not require DEC to, or public review of, a CAFO's NMP before the CAFO can obtain coverage under the permit. Instead, CAFO owners or operators need only submit to DEC a certification from an Agricultural Environmental Management ("AEM") certified planner that the CAFO's NMP has been prepared in accordance with applicable standards and the general permit. As the Albany County Supreme Court has explained, AEM planners are "private consultants retained and compensated by the CAFOs, and

[46] *See* CWA CAFO General Permit.
[47] *See* ECL CAFO General Permit.
[48] CWA CAFO General Permit § III.A.2(h).
[49] *See id.* § II.A.
[50] *See id.*
[51] ECL CAFO General Permit § III.A.8.
[52] DEC, GP-0-16-002, Draft CWA SPDES General Permit for Concentrated Animal Feeding Operations (CAFOs) Attach. III at 1. Attached hereto as Attachment B.

there is no apparent legal reason why a CAFO cannot discharge a planner if it is unhappy with its review, or decline to hire one with a reputation for stringency."[53] Thus, "AEM planners have an inherent conflict of interest in undertaking the role of determining whether [an NMP] complies with the [ECL CAFO General Permit]."[54] Relying on an AEM planner, rather than DEC, to review NMPs does not ensure that the NMPs will prevent nutrient discharges. In addition, failing to provide for public review of NMPs prevents localities and community members from ensuring that NMPs will prevent nutrient discharges. In an amicus brief in a case challenging DEC's 2017 CWA CAFO General Permit, which also failed to provide for public review of NMPs, the City of Ithaca stated that it was "concerned about how its inability to view or participate in comment on NMPs may undermine its interest in maintaining Cayuga Lake's water quality."[55]

Recently, a significant number of CAFOs switched from operating under the CWA CAFO General Permit to the less protective and less transparent ECL CAFO General Permit. In 2018, following a decision by the Albany County Supreme Court ordering DEC to revise a prior version of the CWA CAFO General Permit to comply with federal law, over 200 CAFOs switched from the CWA CAFO General Permit to the ECL CAFO General Permit.[56] In other words, over 200 CAFOs previously designed, constructed, operated, and maintained to discharge pollutants claimed that they no longer discharged any pollutants. Unless these CAFOs drastically changed their practices or facilities, which DEC cannot confirm because it does not review NMPs under the ECL CAFO General Permit, this switch was inappropriate, and it leaves New York's waterbodies less protected from CAFO pollution.

The Draft TMDL identifies 33 Medium or Large CAFOs that are located within the Cayuga Lake watershed and covered under the ECL CAFO General Permit.[57] There are no CAFOs in the watershed covered under the CWA CAFO General Permit.[58] Seventeen of the CAFOs in the watershed switched from the CWA CAFO General Permit to the ECL CAFO General Permit.[59] The Draft TMDL assumes that the CAFOs do not contribute any Phosphorus to the lake because, under the ECL CAFO General Permit, "no discharge of process [wastewater] is permitted, and nutrients applied to the landscape are done so at agronomic rates."[60] This assumption is both legally and factually false. The ECL CAFO General Permit exempts certain discharges of manure, litter, or process wastewater from its prohibition on discharges, and, as discussed above, it falls short of requiring land application in a manner that will prevent all discharges. The assumption is also contrary to extensive evidence that CAFOs in the Cayuga

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[53] *Riverkeeper, Inc. v. Seggos*, 75 N.Y.S. 3d 854, 869 (Sup. Ct. 2018).
[54] *Id.*
[55] Br. of Towns of Camillus, Ithaca, Lafayette and Ulysses and City of Ithaca as Amici Curiae at 18, *Riverkeeper, Inc. v. Seggos*, 75 N.Y.S. 3d 854 (Sup. Ct. 2018) (No. 902103-17).
[56] *See* "GP-04-02" attached hereto as Attachment C. This spreadsheet was produced by DEC as part of its response to a June 2018 Freedom of Information Law records request. The request sought, *inter alia*, a list of facilities formerly covered under the CWA CAFO General Permit that later obtained coverage under the ECL CAFO General Permit.
[57] *See* Draft TMDL app. F, tbl.1.
[58] *See* Draft TMDL at 31.
[59] *See id.*
[60] Draft TMDL at 31.

Lake watershed discharge to surface waters due to precipitation following waste applications, winter weather waste applications, and waste storage pit overflows and breaches.

1. DEC's assumption is incorrect because the ECL CAFO General Permit exempts certain discharges from its prohibition on discharges.

Although the ECL CAFO General Permit purports to prohibit discharges to surface waters, it also provides that "[d]ischarges from land application areas meeting the definition of an *Agricultural Stormwater Discharge* . . . are exempt from the requirements of this general permit."[61] An "Agricultural Stormwater Discharge" is a:

> precipitation-related discharge of manure, litter or process wastewater where the manure, litter or process wastewater has been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater, with site specific conservation practices to control runoff, appropriate testing of manure, litter or process wastewater and soil, and adequate documentation and recordkeeping.[62]

Thus, under the agricultural stormwater discharge exemption, discharges due to precipitation following certain applications of manure, litter, or process wastewater are allowed under the ECL CAFO General Permit. Such discharges certainly occur at CAFOs operating under the ECL CAFO General Permit, because the permit allows CAFO operators to apply waste when precipitation is forecasted,[63] and precipitation following waste application, including application at rates aimed at appropriate agricultural utilization, causes discharges.[64]

Precipitation-related discharges are a common problem in the Cayuga Lake watershed. Indeed, the Draft TMDL recognizes that "Phosphorus loading from agricultural land originates primarily from the application of manure and fertilizers and eroded soil transported off-field during precipitation induced erosion during runoff events."[65] Public comments on DEC's 2015 Draft CWA CAFO General Permit confirm that runoff occurs regularly in Upstate New York. The New York State Conference of Environmental Health Directors informed DEC that "[b]etween 2010 and 2013, manure runoff contaminated both groundwater and surface water in Cayuga, Clinton, Genesee, Livingston, Madison, and Onondaga counties" and "according to [DEC], in the winter and spring of 2014 there were multiple occurrences of both groundwater and surface water contamination from manure runoff in at least 21 counties throughout New York State."[66] The Cayuga County Health Department commented that a "Manure Management

[61] ECL CAFO General Permit § I.B.2.
[62] *Id.* App. A(F).
[63] *See id.* § III.A.8(d).
[64] *See, e.g.*, Peter J. A. Kleinman & Andrew N. Sharpley, *Effect of Broadcast Manure on Runoff Phosphorus Concentrations over Successive Rainfall Events*, 32 J. Env't Quality 1072 (2003); Peter J. A. Kleinman et al., *Effect of Mineral and Manure Phosphorus Sources on Runoff Phosphorus*, 31 J. Env't Quality 2026 (2002).
[65] Draft TMDL at 31.
[66] Letter from Eileen O'Connor, Chair, Conference of Environmental Health Directors, to Douglas Ashline, DEC 1 (Jan. 15, 2016) ("NYSCEHD Comments"), attached hereto as Attachment D.

Working Group in Cayuga County was created following a number of manure runoff incidents that occurred in the winter of 2013-2014."[67] In a 2015 report, the working group explained that "[s]uccess in the necessary reduction of phosphorus pollution will depend upon the implementation of a comprehensive program addressing all of its sources and pathways to receiving waters[,]" including precipitation-related runoff.[68]

Because the ECL CAFO General Permit allows discharges that qualify as agricultural stormwater discharges, the Draft TMDL is legally incorrect that "no discharge of process wastewater is permitted" under the ECL CAFO General Permit.[69] For this reason, and given the evidence of precipitation-related discharges in the Cayuga Lake watershed, the Draft TMDL cannot assume that CAFOs in the watershed do not discharge Phosphorus to Cayuga Lake.

2. DEC's assumption is incorrect because the ECL CAFO General Permit allows winter weather waste applications, which often result in discharges to surface waters.

The Quality Assurance Project Plan for Cayuga Lake acknowledges that "winter animal waste spreading[] . . . likely contributes a substantial fraction of the agricultural phosphorus load."[70] In the face of this acknowledgement, DEC's assumption that there are no Phosphorus discharges from CAFOs in the Cayuga Lake watershed—which can conduct winter weather waste spreading under the ECL CAFO General Permit—cannot be justified.

While the ECL CAFO General Permit prohibits CAFO operators from applying waste to frozen-saturated soil (saturated soil that has frozen), it otherwise allows applications on frozen or snow-covered ground, so long as the CAFO's NMP contains "specific winter application procedures."[71] Because DEC does not review NMPs, there are no assurances that the winter application procedures selected by any individual CAFO will be sufficient to prevent nutrient discharges. Furthermore, the ECL CAFO General Permit does not require monitoring of winter weather applications to ensure that they will not cause discharges, and such monitoring is difficult to conduct.[72] As the Court of Appeals of Washington recently held, without surface water monitoring, it is impossible to ensure that winter weather applications will not cause discharges.[73]

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[67] Letter from Kathleen Cuddy, Cayuga County Health Department, & Eileen O'Connor, Environmental Health Division, to Douglas Ashline, DEC 1 (Feb. 2, 2016), attached hereto as Attachment E.
[68] Advisory Committee to the Cayuga County Manure Management Working Group, *Recommendation Report* 2 (2015), https://www.cayugacounty.us/DocumentCenter/View/1509/Recommendation-Report-of-the-Advisory-Committee-to-the-Cayuga-County-Manure-Management-Working-Group-May-11-2015-PDF.
[69] Draft TMDL at 31.
[70] Upstate Freshwater Inst., *Quality Assurance Project Plan for Phase 1: Monitoring and Modeling Support for a Phosphorus/Eutrophication Model for Cayuga Lake* 1, 23 (2013) https://www.dec.ny.gov/docs/water_pdf/clmpqapp20130315.pdf ("Cayuga QAPP").
[71] ECL CAFO General Permit § III.A.8(c)(1).
[72] Sulkin Declaration ¶ 26.
[73] *See Wash. State Dairy Fed'n v. State*, 2021 WL 2660024, at *19 (Wash. Ct. App. June 29, 2021).

Due to New York's climate, winter weather waste application is common in the state. Runoff following these applications is also common. For example, in February 2017, a structural issue with a CAFO waste pit in the Cayuga Lake watershed forced the CAFO operator to apply waste to fields on an emergency basis. Snowmelt then caused the waste to run off the fields and into Salmon Creek and Cayuga Lake.[74] In February 2014, snowmelt caused manure to run off fields and into Owasco Lake, creating a 75-by-25-foot plume of liquid manure.[75] Water samples collected near the plume revealed high levels of nutrients, including a Phosphorus level of 7,930 parts per billion—nearly 400 times the level at which DEC's regulations advise that Phosphorus levels are of concern.[76] Further, in comments on DEC's 2015 Draft CWA CAFO General Permit, which also allows winter weather applications, the New York State Conference of Environmental Health Directors stated that its "collective experience has shown that manure runoff events typically are a result of manure being applied on frozen and/or snow covered ground followed by precipitation and/or thaw conditions."[77] DEC's own experience is consistent: during the spring of 2014, DEC investigated at least forty incidents of surface water and/or groundwater contamination following winter weather applications.[78]

Studies confirm that "winter application of manure is the least desirable from both a nutrient utilization and pollution standpoint."[79] For example, a study of Graywood Gully, in Conesus Lake, New York, found that applying manure to snow-covered fields for five days caused a "significant increase" in Phosphorus concentrations in Graywood Gully.[80] The elevated Phosphorus concentrations persisted over a 5-week period.[81]

As DEC knows from the QAPP, CAFO winter weather waste applications cause Phosphorus discharges. DEC must account for these discharges in the Draft TMDL.

3. DEC's assumption is incorrect because CAFO waste storage pits overflow or breach, discharging waste into surface waters.

In addition to runoff from manure application, discharges from CAFOs also occur when waste storage pits overflow or breach due to sudden inundations of rainfall or otherwise, structural failures. These events cause large quantities of nutrient-containing waste to flood into

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[74] Kelsey O'Connor, *Manure Spill Impacts Salmon Creek and Cayuga Lake; Municipal Water Supplies Not Affected*, The Ithaca Voice, Feb. 20, 2017, https://ithacavoice.com/2017/02/manure-spill-impacts-salmon-creek-cayuga-lake-municipal-water-supplies-not-affected/.

[75] Carrie Chantler, *Owasco Lake Advocates Decry Runoff of Manure into Water*, Auburn Citizen, April 6, 2014, https://auburnpub.com/news/local/owasco-lake-advocates-decry-runoff-of-manure-into-water/article_498bd2fe-a7ec-5994-b4ed-005111da2e89.html.

[76] *Id.*

[77] NYSCEHD Comments, *supra* note 60, at 2.

[78] DEC, Partial Response to FOIL Requests 14-1526 and 14-1658 (July 8, 2014), Summary of New York State Contamination Incidents Related to CAFOs in Winter and Spring of 2014, attached hereto as Attachment F.

[79] Theodore W. Lewis & Joseph C. Makarewicz, *Winter Application of Manure on an Agricultural Watershed and its Impact on Downstream Nutrient Fluxes*, 35 J. Great Lakes Res. 43, 43 (2009), https://www.researchgate.net/publication/232690051_Winter_Application_of_Manure_on_an_Agricultural_Watershed_and_Its_Impact_On_Downstream_Nutrient_Fluxes.

[80] *Id.* at 49.

[81] *Id.* at 47.

nearby surface water. Indeed, on March 7, 2021, a waste storage pit at Ashland Farm, one of the 33 CAFOs operating under the ECL CAFO General Permit in the Cayuga Lake watershed, overflowed, releasing an estimated 100,000 gallons of waste.[82] The waste entered a stormwater pipe that discharges to a tributary of Great Bully Brook, which is, in turn, a tributary of Cayuga Lake.[83] Additionally, in August 2005, a CAFO waste pit in Lowville, New York breached, spilling three million gallons of waste into the Black River.[84] The contamination grew to roughly one-fourth the size of the infamous Exxon Valdez oil spill and killed vast numbers of fish.[85]

Under the ECL CAFO General Permit, CAFO operators must report waste pit overflows to DEC.[86] Even if there is imperfect compliance with this requirement, DEC certainly is aware of CAFO waste pit overflows, including the overflow at Ashland Farm, in the Cayuga Lake watershed.[87] Given the information DEC has on these incidents, it cannot assume that CAFOs do not contribute Phosphorus to Cayuga Lake.

4. The Draft TMDL must account for Phosphorus discharges from CAFOs.

For the reasons above, the Draft TMDL's assumption that CAFOs do not contribute Phosphorus to Cayuga Lake is erroneous. The Draft TMDL must instead account for Phosphorus discharges from CAFOs in the Cayuga Lake watershed. Further, because these CAFOs are point sources discharging to an impaired waterbody,[88] the CAFOs must be subject to permits that will ensure the waterbody attains water quality standards. The requirements set out in the ECL CAFO General Permit are insufficient to ensure that CAFOs do not discharge Phosphorus and other pollutants. To ensure that the Southern End of Cayuga Lake attains water quality standards, DEC must require CAFOs in the Cayuga Lake watershed to obtain permits under the more protective CWA CAFO General Permit or individual Clean Water Act permits that set Phosphorus discharge limits at zero and provide for robust monitoring and inspection to enforce the limits.[89]

B. The Draft TMDL Fails to Account for Climate Change and Its Effects on Phosphorus Discharges and Uptake, Algae Growth, and Water Quality.

Not only does the Draft TMDL fail to account for Phosphorus discharges from CAFOs, but it also fails to account for climate change, a fundamental flaw in the document. As DEC knows, as a result of climate change, "[a]nnual average temperatures have increased in all regions of the state," and "[m]ore warming will occur, mostly in the northern parts of New

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[82] Jeremy Boyer, *'Recipe for Disaster': State Cites Cayuga County Farm After Manure Overflows*, Auburn Citizen (Mar. 28, 2021), https://auburnpub.com/news/local/recipe-for-disaster-state-cites-cayuga-county-farm-after-manure-overflows/article_9f0416dd-4048-5601-a8e9-91f56dde4ed4.html.

[83] *Id.*

[84] Michelle York, *Workers Trying to Contain Effects of Big Spill Upstate*, The New York Times (Aug. 15, 2005), https://www.nytimes.com/2005/08/15/nyregion/workers-trying-to-contain-effects-of-big-spill-upstate.html.

[85] *Id.*

[86] ECL CAFO General Permit § IV.B.

[87] *See* Boyer, *supra* note 74.

[88] *See* 33 U.S.C. § 1362(14) (defining "point source" to include CAFOs).

[89] In addition, because CAFOs in the Cayuga Lake watershed discharge to surface waters, there is no question that they must obtain coverage under general or individual CWA permits.

York."[90] In addition, increased precipitation caused by climate change "is expected to continue, with more frequent storm events and heavier downpours."[91] In particular, "[r]egional precipitation across New York State is projected to increase by approximately 1-8 percent by the 2020s" and "3-12 percent by the 2050s."[92] Likewise, "increases are projected in the frequency, intensity, and duration of extreme precipitation events."[93] Further, "[s]torms once considered a 1 in 100 year event have become more frequent" and "are now likely to occur almost twice as often."[94]

Rising temperatures, increased precipitation, and stronger, more frequent storms resulting from climate change will exacerbate the level of Phosphorus and presence of harmful algal blooms in Cayuga Lake. Warmer temperatures will increase internal Phosphorus loading from sediments[95] and promote additional algae growth.[96] Increased precipitation will worsen eutrophication, especially in the Northeast.[97] In addition, it will lead to more runoff from land applications of CAFO waste and fertilizer, another significant source of Phosphorus pollution in Cayuga Lake.[98] Increased precipitation will also cause CAFO waste storage pits—which, under the ECL CAFO General Permit, are designed to withstand only 25-year, 24-hour storms—to breach or overflow more frequently.

Incorporating climate change predictions into nutrient TMDL modeling is now a best practice. The Lake Champlain Basin SWAT Climate Response Modeling used various climate models to predict its effect on the Lake Champlain SWAT model.[99] The results were that "[t]he different climate scenarios are in agreement on an increase in annual flow volumes, peak flows, and pollutant loads…."[100]

Governor Cuomo has recognized that harmful algal blooms have "been linked to phosphorus and other nutrient inputs and [are] exacerbated by heavy rain events and warming

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[90] *Impacts of Climate Change in New York*, DEC, https://www.dec.ny.gov/energy/94702.html (last visited July 1, 2021).
[91] *Id.*
[92] N.Y. State Energy Rsch. & Dev. Auth., *Climate Change in New York State* 8 (2014), http://www.nyserda.ny.gov/-/media/Files/Publications/Research/Environmental/ClimAID/2014-ClimAid-Report.pdf.
[93] *Id.* at 14.
[94] Northeast Regional Climate Center & Natural Resources Conservation Service, *Extreme Precipitation in New York & New England*, http://precip.eas.cornell.edu/ (last visited July 1, 2021).
[95] Kenneth J. Gibbons & Thomas B. Bridgeman, *Effect of Temperature on Phosphorus Flux from Anoxic Western Lake Erie Sediments*, 182 Water Rsch. 116022 (2020), https://doi.org/10.1016/j.watres.2020.116022.
[96] Christopher J. Gobler, *Climate Change and Harmful Algal Blooms: Insights and Perspectives*, 91 Harmful Algae 101731 (2020), https://doi.org/10.1016/j.hal.2019.101731; Klaus D. Jöhnk et al., *Summer Heatwaves Promote Blooms of Harmful Cyanobacteria*, 14 Glob. Change Biology 495 (2007), https://doi.org/10.1111/j.1365-2486.2007.01510.x; Hans W. Paerl et al., *Controlling Harmful Cyanobacterial Blooms in a World Experiencing Anthropogenic and Climatic-Induced Change*, 409 Sci. Total Env't 1739 (2011), https://doi.org/10.1016/j.scitotenv.2011.02.001.
[97] E. Sinha et al., *Eutrophication Will Increase During the 21st Century as a Result of Precipitation Changes*, 357 Science 405 (2017).
[98] *See* Draft TMDL at 31.
[99] Tetra Tech, Inc., *Lake Champlain Basin SWAT Climate Response Modeling* (2015), https://www.epa.gov/sites/production/files/2015-09/documents/swat-climate-response-modeling.pdf.
[100] *Id*. at 14.

waters related to climate change."[101] As part of a $65-million initiative to address harmful algal blooms, the governor identified Cayuga Lake as a priority waterbody.[102] Thus, DEC cannot ignore the impact of climate change on Phosphorus pollution in Cayuga Lake. DEC must revisit the Draft TMDL and consider climate change impacts on the impairment and the reductions needed to attain water quality standards.

C. The Draft TMDL Relies on Problematic Data and Modeling Leading to Phosphorus Load Reductions That Will Not Ensure Compliance with Water Quality Standards.

1. The Draft TMDL relies on outdated modeling.

While the Draft TMDL appears to use sophisticated modeling, that modeling was run for a 16-year period from 1998 to 2013. Using data and modeling containing data from over 20 years ago fails to reflect the current conditions in Cayuga Lake.[103] Cayuga Lake has been experiencing Harmful Algal Blooms since 2017, which likely reflects higher nutrient levels in Cayuga Lake than in the period used as the basis for the TMDL's model. Further, the ECL CAFO general permit was issued in January 2017, meaning the data used in the modeling does not reflect the loading after the ECL CAFO general permit was put in place. Given the emergence of Harmful Algal Blooms in Cayuga Lake and the role that CAFOs likely play in contributing nutrients to the lake, it is imperative for the TMDL to use modeling based on more recent nutrient data.

2. The Draft TMDL's reliance on sampling data from open water sampling sites fails to reflect the scope of the lake's impairment.

The Draft TMDL relies on water quality data gathered from multiple locations through various sampling programs. However, the monitoring program relied on a dataset that reflects primarily open water sites throughout Cayuga Lake.[104] The data, collected biweekly from mid-April through late-October, were then averaged to produce observed "summer mean epilimnetic TP and Chl-a concentrations."[105]

The Draft TMDL relies on summer mean concentrations gathered from open water locations without demonstrating how these conditions reflect the reality of Phosphorus and Chl-a concentrations through shoreline areas of the lake that are plagued by overgrowth of plants and algae. Further, by using summer mean concentrations, the Draft TMDL ignores seasonal spikes in Phosphorus levels that could indicate the role played by agricultural practices. For example, the QAPP recognizes that "some farms practice winter animal waste spreading, which likely

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[101] Press Release, Governor's Press Office, *Governor Cuomo Unveils 12th Proposal of 2018 State of the State: Protecting New York's Lakes from Harmful Algal Blooms* (Dec. 21, 2017), https://www.governor.ny.gov/news/governor-cuomo-unveils-12th-proposal-2018-state-state-protecting-new-yorks-lakes-harmful-algal#_blank.
[102] *See id.*
[103] Sulkin Declaration ¶ 41.
[104] Draft TMDL at 22 fig.6; Draft TMDL at 23 fig.7.
[105] Draft TMDL at 36 tbl.15.

contributes a substantial fraction of the agricultural phosphorus load."[106] The Cayuga Lake model could have been used to "quantify the fraction of the load linked to this practice and how much of the total phosphorus load can be reduced by diminishing this practice."[107] However, the model's focus on summer mean concentrations ignored this level of information that could have been extremely useful in pinpointing the practices that are leading to excessive plant and algae growth.

Concentrations of Phosphorus and Chl-a in open water areas of Cayuga Lake do not reflect Phosphorus and Chl-a concentrations at the shoreline areas experiencing excessive plant and algal growth. Recent data reports from the CSLAP program show drastic differences in the Chl-a values in open water and along the shoreline.[108] For example, those data reflect two Chl-a measurements above 6 ug/L (8.9 and 6.9) along with one very low Chl-a measurement from September 18, 2017 of 2.5 ug/L. That 2.5 ug/L measurement lowered the long-term Chl-a average to 3.4, even though the open water sampling site did measure about 6 ug/L twice during eight sampling events. That report also demonstrates the noted difference between Chl-a measurements in open water versus measurements taken at the shoreline. While each of the eight 2017 Open Water Algae Samples all measure below 10 ug/L, the 2017 Shoreline Algae Samples range between 10 ug/L and 10,000 ug/L, with five of the ten samples reaching approximately 1,000 ug/L or above.[109] These differences in observed Chl-a between the open water and shoreline sampling locations suggest that the Draft TMDL's approach of achieving a 6 ug/L Chl-a standard in open water sampling locations will not address the abundance of algae growth at the shoreline currently impeding recreation in Cayuga Lake.

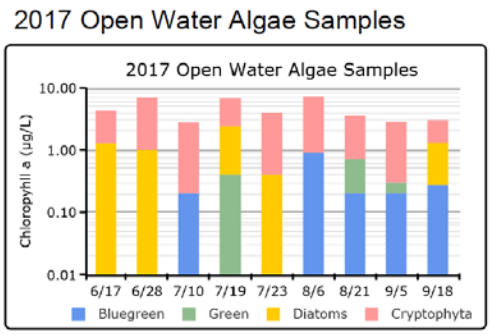

Figure 5: 2017 Open Water Algae Samples.[110]

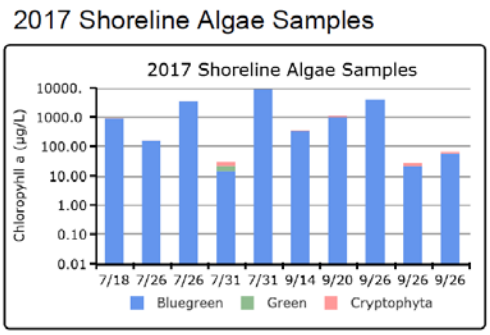

Figure 6: 2017 Shoreline Algae Samples.[111]

[106] Upstate Freshwater Inst. (2013), *supra* note 63, at 23.
[107] *Id.*
[108] *See* CSLAP, *Report Site 2 (S)* (2017).
[109] *See id.*
[110] *Id.* at 2.
[111] *Id.*

Similarly, data from the 2018 and 2019 CSLAP Reports reflect open water measurements of Chl-a below 10 µg/L, while shoreline algae samples show almost all but two samples exceeding 10 µg/L, with other samples ranging up to 10,000 µg/L.[112]

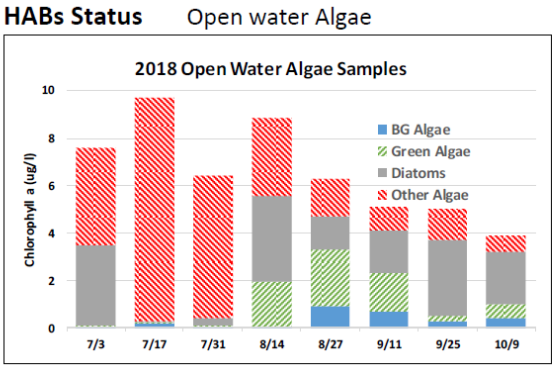

Figure 7: 2018 Open Water Algae Samples.[113]

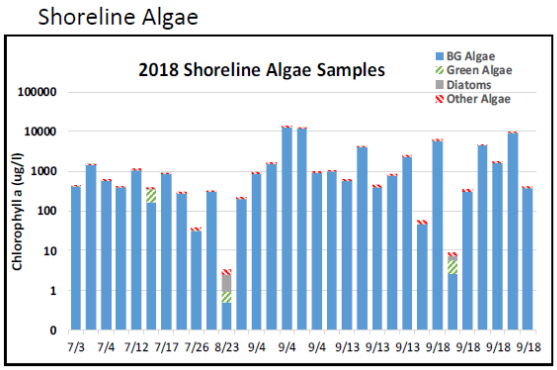

Figure 8: 2018 Shoreline Algae Samples.[114]

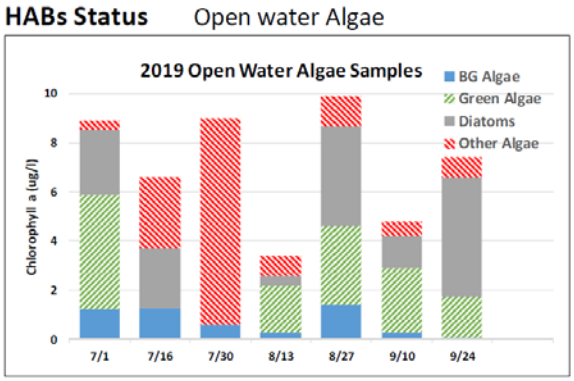

Figure 9: 2019 Open Water Algae Samples.[115]

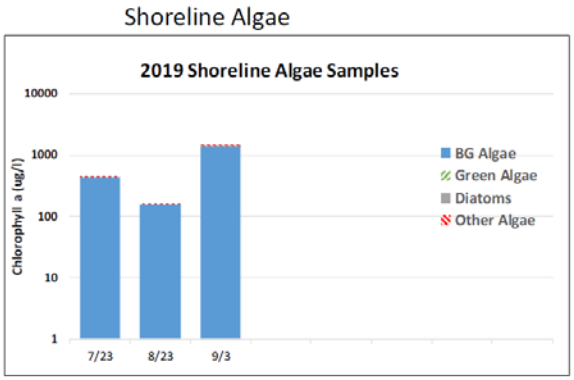

Figure 10: 2019 Shoreline Algae Samples.[116]

These differences in observed Chl-a between the open water and shoreline sampling locations suggest that the Draft TMDL's approach of relying on open water sampling sites to establish baseline conditions fails to reflect the actual impairments in the lake.[117] Further, the Draft TMDL's goal of achieving a 6 µg/L Chl-a standard in open water sampling locations will not address the abundance of algae growth at the shoreline currently impeding recreation in Cayuga Lake.

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[112] *See* CSLAP, *Report Cayuga Lake (S3)* (2018), https://www.dec.ny.gov/docs/water_pdf/cslrpt18cayugal3.pdf; CSLAP, *Report Cayuga Lake (S2)* (2019); CSLAP, *Report Cayuga Lake (S3)* (2019).
[113] CSLAP 2018 at 2.
[114] *Id.*
[115] CSLAP (S3) 2019 at 2.
[116] *Id.*
[117] Sulkin Declaration ¶ 38.

3. The Draft TMDL's model assumes that all Phosphorus inputs into Cayuga Lake cause or contribute the impairment in the Southern End.

The TMDL recognizes that the 30-mile long "Cayuga Lake drains north to the Seneca River which flows to Lake Ontario."[118] The Draft TMDL also notes there is "complex and dynamic circulation between the Southern End and the main lake."[119] The TMDL concludes that "[t]he internal seiche and intermittent upwelling complicate circulation patterns and increase flushing rates on the Southern End segment and link the water quality between the Main lake and the Southern End."[120]

The papers that the Draft TMDL cites discuss circulation between the Southern shelf of the lake and nearby pelagic water, but do not go as far as to say that water from the Northern end of the lake mixes with water from the Southern end of the lake *in* the Southern end of the lake. In fact, Effler *et al*. find that water in the Southern shelf generally travels northward, and makes no mention of water from the Northern End of the lake travelling south.[121] Gelda *et al.,* which also considers the flushing of the Southern shelf, states that the lake is incompletely mixed.[122] The Upstate Freshwater Institute Report also indicates that the total Phosphorus measures for pelagic waters are much lower than those for the shelves due to "runoff event inputs from local tributaries", indicating that local Phosphorus discharge plays a much larger role in Phosphorus levels at the shelf.[123] While the Draft TMDL's citations do establish that the lake's orientation leads to wave activity and subsurface seiche, they do not indicate that this activity leads to waters from the Northern end of the lake travelling southward to mix with the Southern end.

The Draft TMDL has failed to show how focusing on Phosphorus reductions in the unimpaired mid-south, mid-north, and Northern segments of the lake will lead to a reduction of plant and algae growth in the impaired Southern end segment. Without this showing, the Draft TMDL's assumption that the Phosphorus reductions should come equally from each of the four segments in order to address the impairment in the Southern end is arbitrary, capricious, and fails to show how the Draft TMDL's proposed load reductions will lead to compliance with water quality standards.

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[118] Draft TMDL at 19.
[119] Draft TMDL at 19.
[120] Draft TMDL at 19.
[121] Steven W. Effler et al., *Tripton, Trophic State Metrics, and Near-Shore Versus Pelagic Zone Responses to External Loads in Cayuga Lake*, 178 Fundamental & Applied Limnology 1 (2010), https://fcs.cornell.edu/sites/default/files/imce/site_contributor/Dept_Energy_and_Sustainability/documents/01-Effler_etal_2010%20.pdf.
[122] Rakesh K. Gelda et al., *Testing and Application of a Two-Dimensional Hydrothermal/Transport Model for a Long, Deep, and Narrow Lake with Moderate Burger Number*, 5 Inland Waters 287 (2015), https://www.tandfonline.com/doi/abs/10.5268/IW-5.4.804.
[123] Upstate Freshwater Inst., *A Phosphorus/Eutrophication Water Quality Model for Cayuga Lake, New York* 25 (2017), https://www.dec.ny.gov/docs/water_pdf/cornelllscclmpphase2.pdf.

4. The Draft TMDL's baseline Phosphorus loading scenario overestimates current loading from the Ithaca Area Wastewater Treatment Facility.

The Draft TMDL is using permitted Phosphorus loads from all point sources instead of current loading amounts. For the Ithaca Area Wastewater Treatment Facility, the permitted load is 40 pounds per day, more than double the 18 pounds per day actual loading. The 40 pounds per day load has not been updated since 2001—when the permit had last undergone full technical review. That effluent limitation fails to reflect the existing tertiary treatment in use at the facility and is not a water quality-based effluent limitation. Assuming a facility is contributing more than double its actual load fails to reasonably reflect the actual loading conditions in the lake. The Draft TMDL commits a fundamental error by assuming the wastewater treatment facilities are discharging at their permitted maximum for Phosphorus and then implementing model runs that assume all point sources should continue contributing at their currently permitted levels. This approach runs afoul of regulatory requirements and guidance that point source discharges must reflect either technology-based effluent limitations or water quality-based effluent limitations—whichever is more protective—before seeking pollutant reductions from nonpoint sources.

5. The Draft TMDL relies too heavily on nonpoint source reductions because the Cayuga Lake Modeling failed to run scenarios that would maximize reductions from point sources.

The Draft TMDL's heavy reliance on nonpoint source reductions in lieu of point source reductions from wastewater treatment plants, the Cornell Lake Cooling facility, the MS4s, CAFOs, and construction stormwater appears to be a function of the modeling scenarios run.[124] It appears that the model did not examine a scenario that reduced permitted discharges from Point Source Loads and the Lake Source Cooling.[125] The modeled scenario of reducing point source discharges only reflects reducing point source discharges to 1 mg/L, which is neither a water quality-based nor a technology-based effluent standard, with no changes to CAFO or MS4 discharges.[126] Further, three model runs considered reducing the Lake Cooling discharge to 4.8 lbs/day of Phosphorus, but those reductions were not examined in conjunction with other point source reductions. The modeling should have examined the nonpoint source reductions needed once point source reductions in Phosphorus are maximized.[127]

6. The Cayuga Lake Model predictions resulted in a wide range of error predictions, resulting in questionable Phosphorus load reductions in the Draft TMDL.

The Draft TMDL arrives at a recommendation of a 30% reduction in TP loading based on the level at which modeled mean summer Chl-a concentrations in the Impaired Segment are

[124] Draft TMDL App. D at D1 tbl.D1.
[125] Sulkin Declaration ¶ 32.
[126] *Id.*
[127] *Id.*

reduced to meet the target value of 6 µg/L in 15 out of 16 modeled years.[128] However, this precise interpretation of the model scenario results is not supported by the predictive capacity of the model. The Draft TMDL indicates that the performance of the Cayuga Lake Model was deemed acceptable based on error thresholds of ± 50% for Chl-a mean summer values for each year.[129] The Draft TMDL must propagate this uncertainty throughout the scenario modeling[130] to ensure that the recommended reductions in TP loading actually result in achievement of the proposed Chl-a target. Accounting for this uncertainty is necessary even if the concerns related to model performance raised above are addressed.

In the absence of a more rigorous approach to accounting for uncertainty,[131] a protective approach would be to recommend the reduction in Phosphorus loading associated with achieving a Chl-a target 50% below the actual target (3 µg/L) to account for the acceptable range of error allowed in the model and ensure that the full range of predicted values are likely to actually be below the target. Without doing so, based on the wide range of acceptable error, model predicted values of 6 µg/L for Chl-a for most years in the scenario with a 30% reduction in TP should be interpreted as equally likely to range as high as 9 µg/L.

This wide range of acceptable uncertainty contrasts starkly with the degree of precision the Draft TMDL assumes in its interpretation of model outputs. For example, the Draft TMDL notes that 2011 was "an abnormal year due to extreme meteorological conditions that resulted in *extremely high nutrient loading* to the lake, in which the model predicts a Chl-a value near 7 µg/L."[132] However, with an acceptable precision of ± 50%, most other years could equally likely be well over 1 µg/L above the threshold, extending as high as 9 µg/L.

As shown in Figure 11 of the Draft TMDL, a 30% reduction in TP loading fails to achieve a reduction in Chl-a in which the full range of uncertainty in modeled outputs (6.0 µg/L ± 50% = 3 µg/L – 9 µg/L) would fall below the proposed target for any of the modeled years. The Draft TMDL cannot confidently say that the Chl-a target would be achieved in the scenario with a 30% reduction in TP. Therefore, the recommended reduction in TP loadings necessary to likely result in a reduction in Chl-a values below the threshold should be revised to ensure the reduction is met upon accounting for the uncertainty associated with model predictions of Chl-a concentrations.

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[128] *See* TMDL at 38 fig.11.
[129] *See* TMDL at 36 tbl.15.
[130] For example, several approaches to accounting for uncertainty in TMDL modeling have been described. *See*, Kenneth H. Reckhow, *On the Need for Uncertainty Assessment in TMDL Modeling and Implementation*, 129 J. Water Ress. Planning & Mgmt. 245 (2003), https://doi.org/10.1061/(asce)0733-9496(2003)129:4(245); Rene A. Camacho et al., *A Framework for Uncertainty and Risk Analysis in Total Maximum Daily Load Applications*, 101 Env't Modelling & Software 218 (2018), https://doi.org/10.1016/j.envsoft.2017.12.007; Adel Shirmohammadi et al., Uncertainty in TMDL Models, 49 Transactions Am. Soc'y Agric. & Biological Eng'rs 1033 (2006), https://doi.org/10.13031/2013.21741.
[131] *See id.*
[132] *See* Draft TMDL at 38 (emphasis added).

7. The Draft TMDL's allocations fail to require enough reductions from the Southern End to comply with water quality standards.

The Draft TMDL relies on model predictions to recommend a 30% watershed-wide reduction in loading. However, this watershed-wide approach relies on the unproven assumption that all Phosphorus entering Cayuga Lake—even Phosphorus entering in the Northern end more than 30 miles away—contributes to the impairment in the Southern End despite the fact that 40% of the lake's total inflow comes from the Southern End and the lake is 38 miles long and drains to the North.[133]

The Draft TMDL's allocations fail to require a 30% reduction in Phosphorus loading to the Southern End. The Draft TMDL counts the existing TP load to the Southern End as 270 pounds per day and sets the TMDL allocation at 214 pounds per day, which is only a reduction of 21%, not the 30% the model predicts is necessary. The Draft TMDL only requires 2.1 pounds of TP reductions from the Wasteload Allocation, meaning less than 4% of the 56 pounds of required daily TP reductions in the Southern End are expected from regulated point sources. In contrast, the Draft TMDL requires a reduction of 4 pounds per day of Phosphorus from forested lands draining to the Southern End. The Draft TMDL's approach of requiring only 21% of the overall load reduction necessary from the segment of the watershed that contributes 40% of the total inflow of the lake, with only 4% of those reductions coming from enforceable load reductions sets the TMDL up for failure because it will not lead to reductions necessary to meet water quality standards in Cayuga Lake.[134]

8. Wastewater facilities within the watershed should be given water quality-based effluent limitations.

Each of the wastewater treatment facilities should be required to comply with an effluent concentration for Phosphorus that is protective of water quality.[135] The Cayuga Heights wastewater treatment has a 0.35 mg/L Phosphorus permit limit. If that limit is feasible for Cayuga Heights, it is feasible for the other wastewater treatment facilities in the watershed particularly since the lake is currently over allocated.[136]

Specifically, the Ithaca Area Wastewater Treatment Plant's permit limits should reflect both existing technology at the facility and water quality-based effluent limitations, whichever is more stringent. The Draft TMDL contains incorrect information regarding the Ithaca Area Wastewater Treatment Facility.[137] The facility's permit, as modified on August 1, 2001, established a Phosphorus limit of 40 pounds per day, on a 12-month rolling average. The Ithaca Area Wastewater Treatment Facility's permit has been administratively renewed every five years, maintaining the 40 pound per day limit, even after the facility added tertiary treatment. The latest administrative renewal letter is dated March 11, 2015. The website for the Ithaca Area

[133] Sulkin Declaration ¶20.
[134] Sulkin Declaration ¶20.
[135] Sulkin Declaration ¶ 22.
[136] *Id.*
[137] *See* Draft TMDL at 23.

Wastewater Treatment Facility maintains that the facility "currently discharges an average of less than 10 lbs/day of Phosphorus; well below the allowed limit of 40 lbs/day."[138] The Draft TMDL lists the current load as 18 lbs/day. DEC must update the Ithaca Area Wastewater Treatment Facility's permit to reflect its current tertiary treatment technology and Phosphorus discharge level. Further, a limit based on a 12-month rolling average is no longer appropriate to comply with a daily load limit. The permit limits should reflect a water quality-based daily load with monitoring sufficient to assurance compliance with the permit limit.[139]

9. The Lake Source Cooling facility's permit should reflect water quality-based effluent limitations.

The Draft TMDL allocates 6.4 lbs/day to Cornell's Lake Source Cooling permit. The Draft TMDL fails to demonstrate how this permit limit is water quality-based.[140] In addition, the Lake Source Cooling permit, which was modified on June 1, 2020, contemplates facility expansion and Phosphorus offsets using BMPs. The Draft TMDL must set the facility's permit at a level necessary to attain water quality standards and prohibit increases in Phosphorus discharges.[141]

10. Stormwater discharges within the watershed must be given wasteload allocations that are reflected in effluent limitations and permit conditions for those facilities.

The Draft TMDL fails to comply with EPA's guidance regarding stormwater discharges.[142] Footnote c to Table 11 states, "MS4 loading is accounted for in the developed land load."[143] However, EPA has clarified that stormwater discharges, as point sources, must be given WLAs that are then used to establish water quality-based effluent limits and NPDES permit conditions.[144] To comply with the law, the state must require all MS4s discharging to Cayuga Lake to obtain individual discharge permits, or at least a general permit with numeric limits based on the TMDL's available capacity and protective of water quality standards.[145] These permits should not only require municipalities to monitor their discharges for Phosphorus but also set water-quality based numeric limits for Phosphorus. Numeric limits in stormwater discharges needed for compliance with TMDLs have occurred in some situations for more than twenty years.[146] The Draft TMDL's approach of giving MS4s a free pass from reducing Phosphorus discharges is unacceptable. The MS4 general permit's requirement of ensuring "no

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[138] *Wastewater Treatment*, City of Ithaca, https://www.cityofithaca.org/331/Wastewater-Treatment (last visited June 29, 2021).
[139] Sulkin Declaration ¶ 23.
[140] Sulkin Declaration ¶ 24.
[141] *Id.*
[142] Sulkin Declaration ¶ 25.
[143] Draft TMDL at 28.
[144] Sulkin Declaration ¶ 25.
[145] *Id.*
[146] *See* Cal. Reg'l Water Quality Control Bd., *Trash Total Maximum Daily Loads for the Los Angeles River Watershed* 1 (2007); *Trash Total Maximum Daily Loads for the Los Angeles River Watershed* (2007); *Los Angeles River Metals TMDL* (2006).

net increase of discharge" of Phosphorus is not a water quality-based effluent limit required under the Clean Water Act.[147]

11. The Draft TMDL should prohibit the use of general permits for stormwater sources within the watershed.

The Draft TMDL should prohibit the use of general permits for construction activities and for industrial stormwater.[148] Any facility requiring a construction stormwater permit or an industrial stormwater permit must be issued an individual permit with water quality-based effluent limits for Phosphorus and related parameters.[149]

D. The Draft TMDL Fails to Adequately Address Seasonal Variation.

Clean Water Act regulations mandate that TMDLs "shall be established at levels necessary to attain and maintain the applicable narrative and numerical [water quality standards] with seasonal variations…."[150] The Draft TMDL's approach to seasonal loading falls short of meaningfully addressing the critical seasonal nature of Phosphorus loading and nuisance plant and algae growth in Cayuga Lake. The Draft TMDL acknowledges that "Chlorophyll-a concentrations in Cayuga Lake vary seasonally, with higher concentrations occurring during growing season months."[151] The Draft TMDL, however, is silent regarding the seasonal nature of Phosphorus inputs to Cayuga Lake and whether seasonal Phosphorus loading targets may be appropriate. The Draft TMDL claims that "Chl-a water quality targets were evaluated during growing season months ensuring seasonal variation was taken into account in the development of the Cayuga Lake TMDL."[152] However, the disconnect between Chl-a levels and Phosphorus loading, as well as the fact that the Southern End is meeting the summer mean Chl-a target, demonstrates how the Draft TMDL's approach to addressing seasonal variation falls short. The Draft TMDL's use of average annual Phosphorus loading disregards spikes of Phosphorus loading in the spring that contribute to summer algae and plant growth.

IV. While the Southern End of Cayuga Lake is Impaired, DEC Cannot Allow New Point Sources to Contribute Phosphorus to the Southern End.

EPA regulations implementing the Clean Water Act require that, if a water body is impaired for a pollutant, a permitting agency may not allow any new point sources to contribute to the impairment, unless certain strict conditions are satisfied.[153] Specifically, 40 C.F.R. § 122.4(i) provides that no permit may be issued:

> To a new source or a new discharger if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge into a

[147] Sulkin Declaration ¶ 25.
[148] Sulkin Declaration ¶ 21.
[149] Sulkin Declaration ¶ 21.
[150] 40 C.F.R. §130.7(c)(1).
[151] Draft TMDL at 48.
[152] *Id.*
[153] *See* 40 C.F.R. § 122.4(i).

> water segment which does not meet applicable water quality standards . . . and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that:
>
> (1) There are sufficient remaining pollutant load allocations to allow for the discharge; and
>
> (2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards. …[154]

It is well-settled that "the first sentence of the regulation is very clear that no permit may be issued to a new discharger if the discharge will contribute to the violation of water quality standards."[155] The exception to this rule, set out in clauses (1) and (2), "does not apply unless the new source can demonstrate that, under the TMDL, the plan is designed to bring the waters into compliance with applicable water quality standards."[156] To make that demonstration, the new source must show that "there are sufficient remaining pollutant load allocations under existing circumstances," and that "the existing discharges from point sources are . . . subject to compliance schedules designed to bring [the water body] into compliance with water quality standards…."[157]

In effect, § 122.4(i) creates two options for a permitting agency considering a new point source that will discharge to an impaired water body: (1) ensure that the two clauses in § 122.4(i) are satisfied, or (2) resolve the impairment before issuing the permit. Both options require a TMDL "designed to bring the waters into compliance with applicable water quality standards."[158] For all the reasons set out in this comment, the Draft TMDL will not bring the Southern End of Cayuga Lake into compliance with water quality standards for Phosphorus. Thus, until DEC has revised the Draft TMDL such that it is based on factually accurate assessments and guarantees nutrient reductions sufficient for the Southern End to achieve water

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[154] This regulation applies to expansions of existing point sources. *See* 33 U.S.C. § 1316(a)(2) (defining "new source" as "any source, the construction of which is commenced after the publication of proposed regulations prescribing a standard of performance . . . which will be applicable to such source…."); 40 C.F.R. § 122.2 (defining "new discharger" as "any building, structure, facility, or installation: (a) From which there is or may be a 'discharge of pollutants;' (b) That did not commence the 'discharge of pollutants' at a particular 'site' prior to August 13, 1979; (c) Which is not a 'new source;' and (d) Which has never received a finally effective NPDES permit for discharges at that 'site.'").

[155] *Friends of Pinto Creek v. EPA*, 504 F.3d 1007, 1012 (9th Cir. 2007).

[156] *Id.*

[157] *Id.* at 1013.

[158] *Friends of Pinto Creek*, 504 F.3d at 1012.

quality standards, DEC may not issue permits to new point sources—including CAFOs—that will contribute Phosphorus to the Southern End.[159]

V. The Draft TMDL Fails to Provide Schedules for TMDL Assessment or a Timeline for Achievement of Water Quality Standards.

The Draft TMDL fails to set out timelines when reductions will occur.[160] It also fails to establish a monitoring and reporting plan to gauge the success of TMDL application or a plan to modify the TMDL if water quality is not improving.[161] According to EPA, "TMDL submittals should include a monitoring plan to determine whether the TMDL has attained water quality standards and to support any revisions to the TMDL that might be required."[162] Long-term monitoring is particularly important where a "TMDL strateg[y is] heavily dependent on loading reductions through [Load Allocations]" in order "to evaluate BMP effectiveness" and determine whether the necessary load reductions are occurring.[163] For load reductions, EPA recognizes that "[i]t is often important to determine whether actions identified in the implementation plan actually were carried out (implementation monitoring) and whether these actions were effective in attaining TMDL allocations (effectiveness monitoring)."[164] EPA has stressed that "[e]ffectiveness monitoring should not be an afterthought, but a critical component of the TMDL development process."[165] The Draft TMDL contains neither implementation monitoring nor effectiveness monitoring, rendering its plan to rely heavily on reductions from nonpoint sources flawed.

The Final TMDL must include monitoring to track whether nonpoint source reductions are occurring and what effect, if any, they are having on water quality within Cayuga Lake. The Final TMDL must set benchmarks for reassessing the efficacy of the TMDL and whether or not water quality is improving. The Final TMDL must also commit to reopening and reallocating Phosphorus loads if TMDL implementation is not leading to water quality improvements.

CONCLUSION

Cayuga Lake has long suffered from excess nutrients, leading to nuisance plant and algal blooms and interfering with recreation in the lake. While we recognize that it is time for DEC to

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[159] In the Draft TMDL, DEC asserts that it may issue permits to new points sources if the permits "include enforceable provisions to achieve a 100% offset of the new loadings." Draft TMDL at 72. However, *Friends of Pinto Creek* is clear that "there is nothing in the Clean Water Act or the regulation that provides an exception for an offset when the waters remain impaired and the new source is discharging pollution into that impaired water." 504 F.3d at 1012.

[160] Sulkin Declaration ¶ 44.

[161] Sulkin Declaration ¶ 44.

[162] Nutrient TMDLs at 8-1.

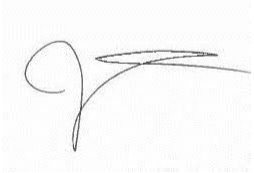
[163] *Id.* at 7-3.

[164] *Id.* at 8-2.

[165] The Cadmus Group, *Recommendations for Developing TMDL Effectiveness Monitoring Plans* 3 (2011) https://www.epa.gov/sites/production/files/2015-07/documents/recommendations_for_tmdl_effectiveness_monitoring_final_7-27-11.pdf

prepare and implement a TMDL to begin bringing the lake into compliance with water quality standards, the Draft TMDL falls short of legal requirements and will not ensure compliance with water quality standards. For the reasons detailed above, we request that DEC reopen the Draft TMDL, address the problems identified in these comments, and recirculate a new Draft TMDL for comment before finalizing a Phosphorus TMDL for Cayuga Lake. We reserve the right to rely on comments submitted by other commenters during the public comment period.

Respectfully submitted,



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Attachments

Attachment A: Declaration of Barry W. Sulkin,
- Exhibit 1: Resume of Barry W. Sulkin
- Exhibit 2: SPDES Permit for Ithaca Area Wastewater Treatment Facility
- Exhibit 3: SPDES Renewal Permit for Ithaca Area Wastewater Treatment Facility

Attachment B: Draft CWA SPDES General Permit for Concentrated Animal Feeding Operations

Attachment C: GP-04-02

Attachment D: Letter from Eileen O'Connor, Chair, Conference of Environmental Health Directors, to Douglas Ashline, DEC 1 (Jan. 15, 2016)

Attachment E: Letter from Kathleen Cuddy, Cayuga County Health Department, & Eileen O'Connor, Environmental Health Division, to Douglas Ashline, DEC 1 (Feb. 2, 2016)

Attachment F: Partial Response to FOIL Requests 14-1526 and 14-1658 (July 8, 2014), Summary of New York State Contamination Incidents Related to CAFOs in Winter and Spring of 2014

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