

Reponses to questions received during the November 8, 2017 public webinar titled 'Long Island Sound Nitrogen Reduction Strategy Overview'.

Some of the questions have been summarized and grouped together for brevity.

Webinar slides are posted at: <http://longislandsoundstudy.net/wp-content/uploads/2016/02/Nov-8-2017-N-Strategy-public-webinar-final-web-version.pdf>

Sources, Availability, and Access to Data

- 1. In Task B what was the range of dates for the data that were utilized? Where they current data from Discharge Monitoring Reports (DMRs)? Is the data set available for review, if so where?**

The data used in subtask B ranged from 2004-2015, though most point source data are from 2014 and 2015. Details on this task and the data summary are available in the report online at <http://longislandsoundstudy.net/issues-actions/water-quality/nitrogen-strategy/>. The underlying database does use Discharge Monitoring Reports (DMRs) as displayed through the EPA Enforcement and Compliance History Online (ECHO) <https://echo.epa.gov/>.

- 2. Besides the data report - is the underlying water quality monitoring database available?**

Details on subtask D and the data summary are available in the report online at <http://longislandsoundstudy.net/issues-actions/water-quality/nitrogen-strategy/>. Due to the large file size, EPA did not post it on the website. The underlying water quality monitoring database can be made available upon request.

- 3. Given that nearly 40% of N loading to LIS comes from the Connecticut River, I am curious what proportion of that loading comes from wastewater treatment plant (WWTP) point sources?**

Information on wastewater treatment plant nitrogen loading and source estimates to the Connecticut River can be found in the subtask A-C memo on the LISS website: <http://longislandsoundstudy.net/issues-actions/water-quality/nitrogen-strategy/>. The 2000 LIS TMDL estimated that 73% of the total in-basin load to LIS comes from points sources, with the majority of that load coming from WWTPs. The TDML can be found at: <http://longislandsoundstudy.net/wp-content/uploads/2010/03/Tmdl.pdf>

- 4. Is the data that is being utilized considered current and reflective existing conditions today?**

The water quality data cover a broad range, 2006-2015, that EPA considers reflective of current conditions. The information used represents a strong, representative database within the given timeframe and quality assurance bounds. Generally, data availability is quite good, though EPA found several areas where there was limited or no data. EPA and Connecticut Department of Energy and Environmental Protection have initiated sampling in some of these areas to better assess current conditions.

Technical Study Target Areas

- 5. It seems from your hydrodynamic model that Connecticut River plume only influences a small section of eastern LIS, which does NOT have serious hypoxia. Would that justify focusing more resources on reducing N loading from NYC and western LIS embayments?**

While the Connecticut River area of influence may not have serious hypoxia issues, it may have other issues caused by excess nitrogen such as algal blooms and loss of eelgrass. Additionally, by modeling how the Connecticut River influences nearby embayments, EPA hopes to understand how much the nitrogen coming from the Connecticut River impacts other embayments in the Sound. Because this modeling effort is focused on the summer season critical period that most influences local water quality, the effect of the Connecticut River during the high spring run-off period on nutrient delivery contributing to open water hypoxia in the western Sound is not fully represented. That influence was evaluated as part of the Long Island Sound Total *Maximum Daily Load (TMDL)* and is not duplicated here. (Available at: <http://longislandsoundstudy.net/wp-content/uploads/2010/03/Tmdl.pdf>)

- 6. Will there be a nitrogen reduction allocation for the Connecticut River?**

No nitrogen load reduction allocations will be made for the Connecticut River during the technical contract period. Proposed allocations will only be developed for the 23 priority embayments, not for Western LIS or the three major rivers (Connecticut, Housatonic, and Thames). This study will develop nitrogen loading thresholds and determine the necessary nitrogen reductions by State in the upper Connecticut River basin to meet water quality targets in the lower Connecticut river. After Tetra Tech completes the technical products, EPA will work with the States to develop allocations for the Connecticut River and Western LIS, if load reductions are necessary, to achieve threshold targets.

Use of Technical Study Results

- 7. Total nitrogen optimization for out-of-state watersheds has been discussed - does this mean WWTPs in MA, VT & NH will not get actual permit TN limits?**

EPA and the States will continue to implement the conditions of the LIS TMDL. For facilities that have received specific allocations from the TMDL, these limits will continue. For out-of-basin facilities where the TMDL requires a 25% reduction in point source loadings, EPA and the States will continue to implement permit conditions requiring nitrogen removal optimization to achieve annual TN loading benchmarks. The data from this technical study will assist EPA and the States in the future development of, where necessary, new total nitrogen requirements to meet water quality standards. If new nitrogen requirements are needed, EPA will consider a general permit for nitrogen in MA.

- 8. What is the plan for the roll out of the nutrient reduction targets for the priority embayments? How does EPA plan to support States and watersheds in understanding these thresholds and their efforts to meet these targets?**

Once nitrogen thresholds and reduction targets are developed for priority embayments via this study, EPA is considering conducting a webinar, hosting a public meeting or similar communication vehicle to disseminate the information. Overall, this study is meant to enhance, or in some cases begin, the nitrogen reduction conversation. EPA will coordinate with States, and regional and local groups in terms of implementation efforts to reach nitrogen targets. EPA has been coordinating with other nitrogen reduction efforts, such as LINAP (Long Island Sound Nitrogen Action Plan) and the Niantic River Estuary Study, to share information on target reductions and see where we can harmonize our efforts.

9. What is a "non-binding allocation"? Can you please discuss what the proposed implementation of a non-binding TN threshold might look like?

The nitrogen thresholds and allocations derived in this study are meant to be a scientific report to assist EPA and states in developing strategies to attain water quality standards. While nitrogen thresholds and reduction targets will be developed for all priority watersheds, allocations will only be developed for the 23 priority embayments but not for Western LIS or the three large river systems (Connecticut, Housatonic, and Thames). Though derived from the best available, current science, the reduction targets and allocations themselves are not formal EPA approved TMDLs.

EPA will work with States, municipalities and regional bodies to develop and implement strategies to attain nitrogen reduction targets. Subsequent regulatory actions such as National Pollutant Discharge Elimination System (NPDES) permit actions based on the modeling efforts or data from this study would require a formal comment and public notice period.

Additional Questions

10. How will nutrient bio-extraction be included in allocation determinations?

This study is not a TMDL and will not provide a load or waste load allocation, nor will it suggest specific methods for reducing nitrogen loads. For each embayment Tetra Tech will evaluate the mix of generalized nitrogen sources and propose percent reductions, where necessary, to achieve nitrogen targets derived from this study. EPA will then work with the States, and in the case of embayments work with local communities as well as States, to determine how nitrogen reductions can be achieved, which may include such strategies as bio-extraction.

11. It is conservative to use salinity and particles to simulate TN behavior since salinity and particles are nonreactive (chemically and biologically) while nitrogen is a reactive compound for its chemical and biological activities in the waterbody. How would this conservativeness be considered as part of your safety factor?

Tetra Tech's goal in this modeling effort was to estimate mixing between the Sound and priority embayments and the contribution of the Connecticut River to priority embayments, as an approximation of total nitrogen exchange. While there will be some settling and volatilization losses, total nitrogen within embayments is likely to be nearly conservative, or enough so, over the growing season so as to merit comparison with salinity for our modeling purposes of estimating nutrient dilution within an embayment. Because this is not a TMDL, a Margin of Safety will not be considered formally.

12. Will EPA be conducting an extensive literature review to assess the effectiveness on stormwater controls to reduce nitrogen loads from MS4s (Municipal Separate Storm Sewer System)?

Such a review is not a part of this study. Information concerning the effectiveness of stormwater controls to reduce nitrogen loads can be found in the MA MS4 in Appendices F and H. The permit can be found here: <https://www.epa.gov/npdes-permits/massachusetts-small-ms4-general-permit>

Next Steps

13. What is your plan to develop stressor-response relationship for Connecticut River embayment with only one pair of data measured in 2006?

For the stressor–response method, hierarchical regression was used to model embayment and riverine data together. By using a hierarchical model, a sparsely sampled embayment can borrow “strength” from the modeled “global” relationships using data from other more intensively sampled embayments. While there are abundant data across the Sound, subtask D helped identify data gaps and further study needs. To address such gaps, EPA sampled the Connecticut River embayment in summer and fall of 2017, and plans to do so again in 2018.

14. When will there be a formal opportunity for comment by stakeholders on Task Memos or other items? Is there an opportunity to comment on each task?

All current deliverables are posted to the LISS website which has a comment box where all are welcome to provide technical comments. The website also provides the opportunity to subscribe to email updates for notification when new deliverables are posted.

EPA has a technical stakeholder group with representatives from States and large water quality monitoring organizations that provides comments on draft deliverables.

Subsequent regulatory actions such as National Pollutant Discharge Elimination System (NPDES) permit action based on the modeling efforts or data from this study would require a comment and public notice period.

15. Can EPA make public the list of members of that advisory group? Are there any municipal representatives on that group? How does one get involved with the technical advisory group?

The group members are provided below. EPA has a core technical stakeholder group made up of States and organizations that directly collect the data being assessed. They provide their own individual technical viewpoint and do not collectively advise EPA.

The Group is led by the EPA project team and consists of one member from:

- Connecticut Department of Energy and Environmental Protection,
- New York State Department of Environmental Conservation,
- Massachusetts Department of Environmental Protection,
- New Hampshire Department of Environmental Services,
- Vermont Department of Environmental Conservation,
- New York City Department of Environmental Protection,
- Rhode Island Department of Environmental Management,
- New England Interstate Water Pollution Control Commission,
- Connecticut River Conservancy,
- United States Geological Survey,
- Save the Sound, Unified Water Study,
- Long Island Sound Study,
- Long Island Sound Science and Technical Advisory Committee,
- Long Island Sound Citizens Advisory Committee, and
- other monitoring groups, and additional partners where appropriate as determined by EPA Project Team.

The technical stakeholder group provides feedback on all technical deliverables from Tetra Tech. While some municipalities are represented on the technical stakeholder group through the Citizen Advisory Committee, other municipalities should work with their State or provide comment through the LISS's website comment tool.