

Policy & Science Advisor Update

ENVIRONMENTAL RESEARCH

Q4 2024



Collecting Water Samples at Avalanche Lake in February 2024 Photo Credit: Paul Smith's College AWI

Featured Research: Adirondack Long Term Monitoring Lake Sampling

Through the Adirondack Long Term Monitoring (ALTM) program, environmental conditions are monitored and data are published on the impacts of acid and mercury emissions from electric generating facilities on Adirondack waterbodies. Established in 1982, the ALTM is one of the longest running, comprehensive environmental monitoring efforts in the country.

NYSDERDA's Environmental Research Program has supported the ALTM program since 1998, in cooperation with the NYS Department of Environmental Conservation (DEC), and the U.S. Environmental Protection Agency (EPA). Paul Smith's College Adirondack Watershed Institute (AWI) was competitively selected to conduct the routine monitoring of lakes for the ALTM Program in January 2023. AWI collects water samples at a total of 58 ALTM lake sites (51 lakes and 7 outlets) following an annual or seasonal sampling frequency. The samples are processed, analyzed, and published by the U.S. Geological Survey – New York Water Science Center in Troy.

Data collected from the ALTM Program have enabled researchers to better understand the complex

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processes involved in ecosystem acidification and its recovery following long-term decreases in acid deposition. The research has been foundational to inform policy makers and support passage of state and federal air pollution control laws, including the federal Clean Air Act Amendments of 1990, the Mercury and Air Toxics Standards (MATS) Rule, and the New York State Acid Deposition Control Act.

Charles Driscoll, University Professor of Environmental Systems and Distinguished Professor at Syracuse University and former member of EPA's federal Clean Air Scientific Advisory Council, is among the nation's leading scientists focusing on how changes in atmospheric deposition and ecosystem processes are influencing the recovery of Adirondack lakes. In November 2024, Driscoll presented on his recent analysis of ALTM program data at the annual meeting of the National Atmospheric Deposition Program in Duluth, MN. To date, his research has shown decreases in acid deposition in the Adirondacks and overall trends of waterbody recovery from acidification, but that rates of recovery are influenced by mobilization of dissolved organic carbon (DOC). A paper on this analysis is forthcoming and will be made public when it is available.

NYSERDA continues to work with collaborators to address short-term needs at specific monitoring sites across the state that are integral to evaluating the effects of electric generation on New York waters and communities. Although energy demand is projected to increase and plans to retire coal fired power plants

Annual long-term measurements of wet deposition of sulfate, nitrate and ammonium measured at Huntington Wildlife Forest in Newcomb, NY (solid symbols) from the National Atmospheric Deposition Network. Since 2000 measurements of dry deposition have been made through the USEPA Clean Air Status and Trends Network (CASTNET). Open circles are estimates of total deposition (wet plus dry deposition).

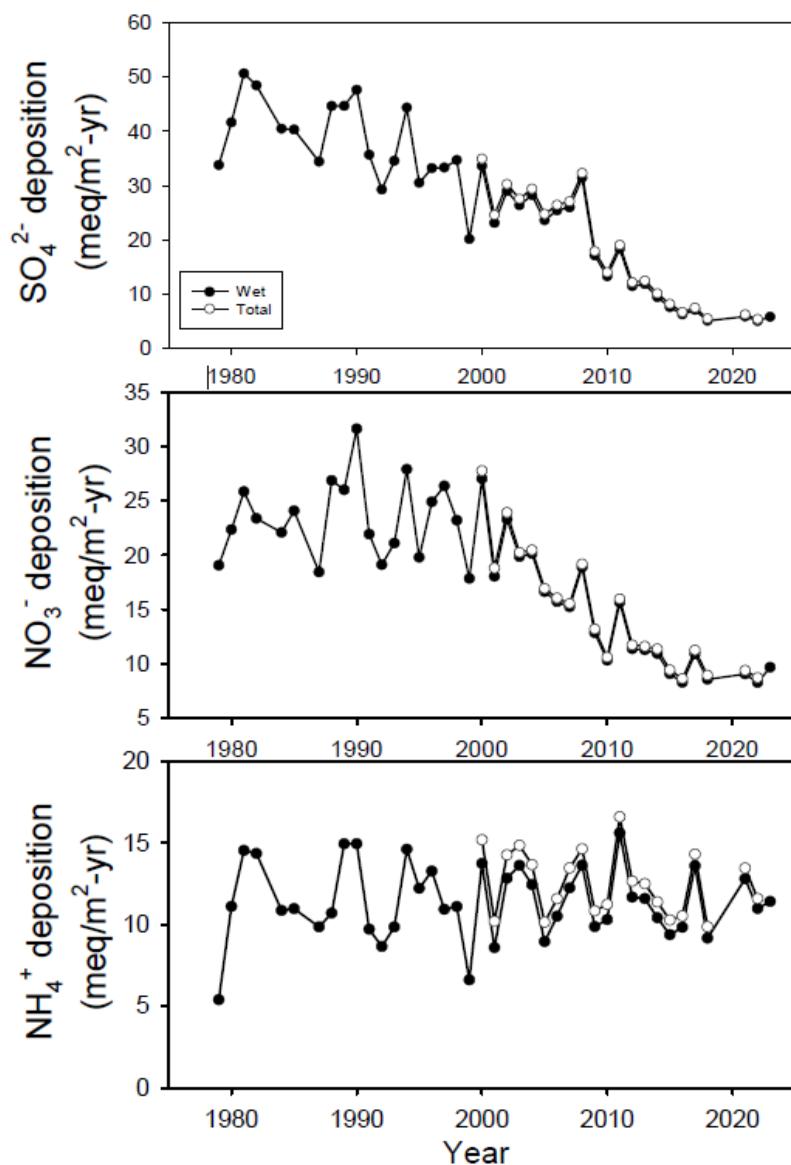


Photo Credit: Syracuse University

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in upwind states are being reconsidered, federal support for long-term monitoring is decreasing. For example, federal funding to analyze ALTM lake samples was unexpectedly withdrawn by EPA in 2024. NYSERDA worked with USGS to ensure the continuation of this data record through 2027. A programmatic review of the ALTM with collaborating agencies, researchers and stakeholders will be initiated in 2026.

Trek to Willy's Lake in May 2024



Photo Credit: Paul Smith's College AWI

Kristin France, NYSERDA Project Manager

Welcome Kristin France, our new Project Manager!

The Environmental Research team is pleased to announce the hiring of Kristin France as Project Manager, who is joining NYSERDA after a distinguished tenure at The Nature Conservancy. Kristin is a Ph.D. ecologist with field experience in a wide range of terrestrial and aquatic systems. She has managed complex projects and initiatives addressing environmental challenges across New York over the past 10+ years, including both climate change mitigation and adaptation, and is keenly interested in how to foster innovation to address public policy challenges. At NYSERDA, Kristin will guide our research agenda and projects related to the intersections of the clean energy transition and effects on terrestrial and freshwater ecosystems and human communities, including an initial focus on agrivoltaics.

"I'm excited to join NYSERDA and look forward to learning alongside researchers and a broad collection of interested parties so we can inform sound policy. I'm interested to hear from you as we shape an evolving research agenda – please reach out!"



Photo Credit: NYSERDA



Offshore Wind

- Regional Fisheries Compensation Fund:** The Multi-State effort to advance a regional fisheries compensation fund has continued to make significant progress. In November, BrownGreer – in partnership with the Carbon Trust – was selected as the Regional Fund Administrator (RFA). They held the first Design Oversight Committee (DOC) with commercial fishermen, states and developers in December and held the first For-Hire Recreational Committee (FHRC) in early January of 2025. These committees will oversee the work of the selected administrator during the design and development phase. In the early part of 2025, the RFA will continue to establish operational processes for the committees and look for opportunities to engage directly with the fishing community on the work they are tasked to accomplish. Additionally, the selected entity is expected launch a project-specific website in Q1 2025. Further details on the program can be found here: <https://offshorewindpower.org/fisheries-mitigation-project>
- Atlantic Surfclam Regulatory and Mitigation Workgroup:** Morgan Brunbauer attended the Atlantic Surfclam Regulatory and Mitigation Workgroup on November 20, 2024 in Philadelphia. Stakeholders from across the OSW spectrum attended an outcome-focused workshop to catalyze movement from research to action on this topic. The invitees included the clam industry, researchers, OSW developers, and state and federal science and regulatory agencies, including NOAA and BOEM. The workshop focused on the following topics: 1) sharing state of the research, identifying additional data needs and gaps; 2) reviewing the BOEM NEPA process and how it can accommodate such mitigation measures; 3) what it may need to reduce risk for implementation (financial, regulatory, etc.); 4) identifying other permitting challenges that may exist; and 5) identifying specific next steps and actions to move from research to action. As previously mentioned in earlier newsletters, NYSERDA is funding an in-situ surfclam growth and survival study to help assess the viability of this effort as a mitigation solution. Final results of this study should be available at the end of 2025.
- Responsible Offshore Science Alliance (ROSA) Request for Proposals (RFP):** In November, ROSA released an RFP seeking proposals to advance understanding of regional and cumulative effects of offshore wind on fish and fisheries and support meaningful solutions to the challenges surrounding responsible ocean co-use through regional research and publicly-available data and data products. Through this RFP, ROSA is soliciting research totaling \$3,442,500 under the following categories, addressing key regional research questions identified as high priority by the ROSA organizational structure and the broader fisheries and offshore wind community. Research needs were considered and prioritized from those included in ROSA's Fish and Fisheries OffshoRe Wind Research Database (FishFORWRD). The dollars available for this RFP are associated with the Empire Wind I NYSERDA contractual obligation of \$10,000 per MW for regional wildlife and fisheries research and monitoring. More information can be found on ROSA's website here: <https://www.rosascience.org/regional-rfp/>
- ROSA Advisory Council Executive Committee:** In November, Morgan Brunbauer was appointed to the ROSA Advisory Council Executive Committee.

- **Regional Funding Plans:** NYSERDA recently approved “Regional Funding Plans” from Empire Wind I and Sunrise Wind, which commit \$8,100,000 and \$9,240,000 respectively to regional-scale monitoring of wildlife and fisheries. New York was the first state to contractually obligate NYSERDA contracted offshore wind projects to dedicate \$10,000 per bid megawatt to better understanding the potential effects of offshore wind energy development on wildlife and fisheries resources at a regional scale.
- **Offshore Wind Transmission Development:** NYSERDA and the New York State Department of Public Service lead a working group composed of State and federal agency representatives to provide a forum for information sharing on offshore wind transmission development. They published a [list of potentially applicable permits and timeframes](#) to support proposals to the New York City Offshore Wind Public Policy Transmission Need.
- **Fisheries Technical Working Group (F-TWG):** The F-TWG met in October to learn about the ongoing BOEM efforts, updates on the regional fund administrator, status of the Massachusetts Boulder Relocation Guidance, and a presentation on Tetra Tech’s Offshore Substation Cooling Water Study, which shall be released in Q1 of 2025.
- **Environmental Technical Working Group (E-TWG):** The E-TWG continues to develop materials to aid in the dissemination of scientifically accurate information about the [potential impacts of offshore wind development on wildlife](#). A specialist committee has developed answers to 23 common questions about offshore wind and whales. A second committee has been launched to focus on questions about potential impacts to birds. These committees draw on the expertise of E-TWG members and a number of external subject matter experts.

[E-TWG Website’s Frequently Asked Questions: Wildlife & Offshore Wind](#)



[Go to Whale FAQ page](#)

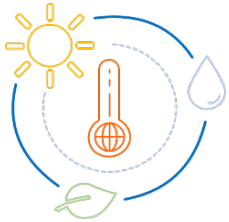


[Go to Bird FAQ page](#)

Photo Credit: New York State Environmental Technical Working Group

The Environmental Technical Working Group met in December to identify priorities for 2025-2027. Presentations and summaries from this and past meetings can be found here: <https://www.nyetwg.com/e-twg-activities/e-twg-meeting-archive>

- **Regional Wildlife Science Collaborative (RWSC):** NYSERDA was selected to represent offshore wind developing states on the Steering Committee for the RWSC through 2025.



Climate Change

- **Climate Impact Assessment:** While the assessment was released in early 2024, work has continued on product development and outreach. The chapters were officially published in [an issue of the *Annals of the New York Academy of Sciences*](#), and the projections were published in interactive, downloadable tables on [Open NY](#), the State's data repository. New features are also available on the assessment website:
 - [A figures gallery](#): Download graphs, maps, and diagrams from the assessment chapters and use or share them with attribution.
 - [Expanded content on disproportionate climate change impacts](#): Learn more about climate equity, climate change impacts on Indigenous Peoples, and risks to vulnerable populations across the state.
 - [An interactive table of impacts and adaptation strategies by hazard](#): Explore a searchable table summarizing impacts from all eight assessment sectors, which can be sorted by climate hazard. The table also identifies examples of adaptation strategies mentioned in the assessment.
- **State Energy Plan:** Program staff are involved in the development of the next State Energy Plan. Climate change and resilience will be the topic of a chapter of the plan, as well as being incorporated into other chapters as relevant.



Ecosystem Response

- **National Atmospheric Deposition Program (NADP):** The 2022 NADP Mercury Litterfall Network (MLN) data has been finalized and made publicly available on the network webpage: <https://nadp.slh.wisc.edu/networks/mercury-litterfall-network/>



Land Based-Renewables

- **Agricultural Technical Working Group (A-TWG):** The A-TWG held a special joint session meeting with the RAISE committee on November 25th which featured a presentation from Department of Public Service staff about the [Coordinated Grid Planning](#) Process being undertaken with the state's public utilities to identify and evaluate upgrades to the state's electric transmission lines. Participants learned about the associated modeling efforts to estimate areas of potential electricity demand growth and renewable energy growth.
- **Regional Agronomic Impacts from Solar Energy (RAISE) Committee:** The RAISE committee of the A-TWG met two times to review and provide input into land use analysis and socioeconomic research outputs. A draft report memorializing Phase 1 of the committee's findings is anticipated in Spring 2025.
- **Agrivoltaic Research and Demonstration Projects RFP:** NYSERDA accepted proposals for agrivoltaic research and demonstration projects pursuant to Program Opportunity Notice 5272 until September 12, 2024. Final awardee announcements are anticipated in Spring 2025.



Air Quality and Public Health

- **Integrated duty-cycle test method for residential wood stoves precision study:**
On October 16, 2024, the Environmental Protection Agency (EPA) held a stakeholder meeting to discuss findings from the EPA funded west coast lab testing and NYSERDA-funded east coast lab testing. This study assessed the NYSERDA developed Integrated Duty Cycle (IDC) test methods for cordwood stoves. The two labs used the same three pairs of cordwood stoves (non-catalytic, hybrid, and catalytic), with both labs using maple for one set of replicate test runs and a local fuel (Douglas fir on the west coast and birch for the east coast). More than 40 people attended the meeting in person and more than 50 participated remotely. Industry, EPA, state/local regulatory agencies, energy offices, and testing labs participated in a robust discussion regarding the IDC test methods, offering suggestions to improve the method. After the meeting, EPA provided additional time to provide feedback. Northeast States for Coordinated Air Use Management (NESCAUM) and EPA worked together and developed a compendium of comments received on the IDC Cordwood Stove test method and developed an approach to revise the test method and provide it to EPA for consideration. EPA indicates that it plans to propose new Federal Reference Methods for residential wood stoves in 2025. EPA plans to hold additional meetings on the pellet stove and central heating protocols. New test methods are a critical element to improve the effectiveness of the New Source Performance Standard for Residential Wood Heaters.

Program Reports and Papers

Air Quality and Related Health Research: Particulate Matter (PM), Ozone and Co-Pollutants

- Borlaza-Lacoste, L., Aynul Bari, Md., Lu, C.-H., & Hopke, P. K. (2024). Long-term contributions of VOC sources and their link to ozone pollution in Bronx, New York City. *Environment International*, 191, 108993. <https://doi.org/10.1016/j.envint.2024.108993>
- Croft, D. P., Utell, M. J., Hopke, P. K., Liu, H., Lin, S., Thurston, S. W., Thandra, S., Chen, Y., Islam, M. R., Thevenet-Morrison, K., Johnston, C. J., Zhao, T., Yount, C., & Rich, D. Q. (2024). Comparison of the rate of healthcare encounters for influenza from source-specific PM_{2.5} before and after tier 3 vehicle standards in New York State. *Journal of Exposure Science & Environmental Epidemiology*. <https://doi.org/10.1038/s41370-024-00710-w>
- Croft, D., Utell, M., Liu, H., Lin, S., Hopke, P., Thurston, S., Chen, Y., & Rich, D. (2024). Change in rate of healthcare encounters for respiratory infection from air pollution exposure after improved vehicle emissions standards in New York State. *Air Quality, Atmosphere & Health*, 17(6), 1267–1280. <https://doi.org/10.1007/s11869-024-01505-6>
- Hassan, H., Schwab, J., Rattigan, O.V. (2024). Estimating the PM_{2.5} Mass Deficit Trends, Contributing Species, and Relation to Ambient Temperature at Three New York State Sites. *Aerosol Air Qual. Res.* 24, 240128. <https://doi.org/10.4209/aaqr.240128>
- Joo, T., Rogers, M. J., Soong, C., Hass-Mitchell, T., Heo, S., Bell, M. L., Ng, N. L., & Gentner, D. R. (2024). Aged and obscured wildfire smoke associated with downwind health risks. *Environmental Science & Technology Letters*, 11(12), 1340–1347. <https://doi.org/10.1021/acs.estlett.4c00785>
- Lin, S., Xue, Y., Thandra, S., Qi, Q., Hopke, P. K., Thurston, S. W., Croft, D. P., Utell, M. J., & Rich, D. Q. (2024). PM_{2.5} and its components and respiratory disease healthcare encounters – unanticipated increased exposure-response relationships in recent years after environmental policies. *Environmental Pollution*, 360, 124585. <https://doi.org/10.1016/j.envpol.2024.124585>
- Lin, S., Xue, Y., Thandra, S., Qi, Q., Thurston, S. W., Croft, D. P., Utell, M. J., Hopke, P. K., & Rich, D. Q. (2025). Source specific fine particles and rates of asthma and COPD Healthcare encounters pre- and post-implementation of the tier 3 vehicle emissions control regulations. *Journal of Hazardous Materials*, 484, 136737. <https://doi.org/10.1016/j.jhazmat.2024.136737>
- Luo, H., & Lu, C. (2024). Impacts of local circulations on ozone pollution in the New York metropolitan area: Evidence from three summers of observations. *Journal of Geophysical Research: Atmospheres*, 129(18). <https://doi.org/10.1029/2023jd039206>
- Trojanowski, R., Butcher, T., & Fthenakis, V. (2024). The impact of fuel type and burn phase on combustion-related emissions and efficiency of woodchip-fired boilers. *Energy & Fuels*, 38(21), 21308–21321. <https://doi.org/10.1021/acs.energyfuels.4c00833>
- Zhang, J., Schwab, M. J., Zhu, T., Catena, A., & Schwab, J. J. (2024). Understudied high-pollution band along Long Island’s south coastline caused by the interaction of New York City urban plumes and a stagnant sea breeze front. *ACS Earth and Space Chemistry*, 8(11), 2110–2116. <https://doi.org/10.1021/acsearthspacechem.4c00193>

Program Reports and Papers

Zhang, J., Zhu, T., Catena, A., Li, Y., Schwab, M. J., Liu, P., Asa-Awuku, A., & Schwab, J. (2024). Technical note: Quantified organic aerosol subsaturated hygroscopicity by a simple optical scatter monitor system through field measurements. *Atmospheric Chemistry and Physics*, 24(23), 13445–13456. <https://doi.org/10.5194/acp-24-13445-2024>

Zhao, T., Hopke, P. K., Utell, M. J., Croft, D. P., Thurston, S. W., Lin, S., Ling, F. S., Chen, Y., Yount, C. S., & Rich, D. Q. (2024). A case-crossover study of St-elevation myocardial infarction and organic carbon and source-specific PM_{2.5} concentrations in Monroe County, New York. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1369698>

Land Based Renewables

New York State Energy Research and Development Authority (NYSERDA). 2023. "Community Solutions for Nonresidential Solar Photovoltaics." NYSERDA Report Number 24-20. Prepared by The Nature Conservancy, New York. Albany, NY. nyserdera.ny.gov/publications

Amanda L. Klehr, Alexis N. Laskowski, and David I. King "Eastern Bluebirds (*Sialia sialis*) Nesting in Photovoltaic Solar Energy Facilities in Eastern New York," *Northeastern Naturalist* 31(4), N30-N34, (10 December 2024). <https://doi.org/10.1656/045.031.0405>