



Photo Credit: Ali Catena, SUNY Albany Atmospheric Sciences Research Center



### Air Quality and Public Health

- [ZIP Code-Level Estimation of Air Quality and Health Risk Due to Particulate Matter Pollution in New York City](#) (University of North Carolina Chapel Hill): Standard particulate matter 2.5 (PM2.5) studies are performed at a coarse resolution that ineffectively characterizes emission distribution and population demographics in New York City (NYC). A new screening tool, [ZIP Code-Level Air Pollution Policy Assessment \(ZAPPA\)](#), was developed to address these limitations and to evaluate air quality and health effects at neighborhood resolution. ZAPPA integrates two reduced-form models - Community Air Quality Tools (C-TOOLS) and Co-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) – for rapid policy development and assessment.

ZAPPA was used to evaluate the PM2.5 emissions reductions, and subsequent health and monetary benefits, of five sector-specific, policy-based emissions scenarios in NYC: Scenario 1) commercial cooking regulations (Local Law 38, 2015); Scenario 2) 100% (private and school bus) fleet electrification; Scenario 3) congestion pricing in mid- and downtown Manhattan (Central Business District Tolling Program, 2022); Scenario 4) No. 4 oil prohibition in residential and commercial buildings (Local Law 43, 2010); and Scenario 5) “city-wide” scenario (combination of Scenario 1 through Scenario 4). The total health benefits under Scenario 5 are estimated to avoid 210 to 475 deaths and 340 asthma emergency department visits annually, saving \$2 to \$5 billion annually.

(Air Quality and Public Health, continued...)

**Avoided health incidences (mortality and ER visits due to asthma) because of the PM<sub>2.5</sub> change (µg/m<sup>3</sup>) after implementing strategy-based scenarios in NYC using ZAPPA**

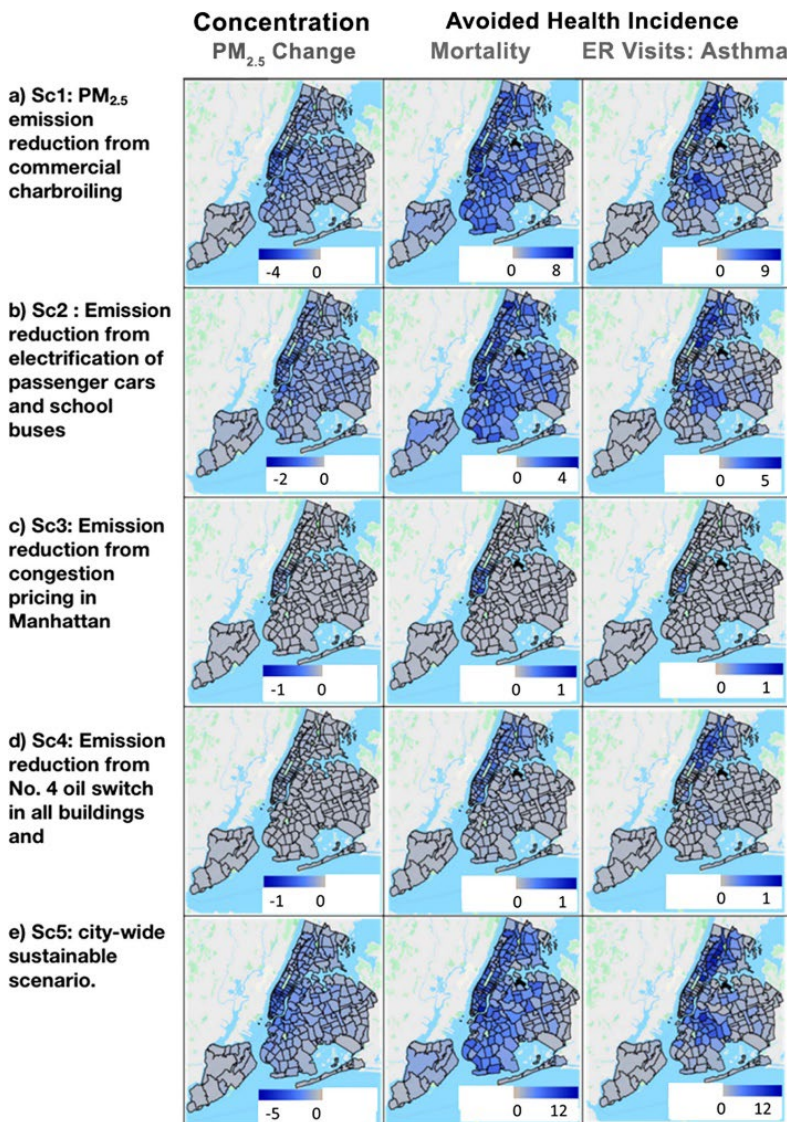


Photo Credit: American Chemical Society

- Long Island Sound Tropospheric Ozone Study (LISTOS) Update:** The Long Island Sound Tropospheric Ozone Study (LISTOS) began during the 2018 ozone season in the New York City (NYC) metro area and Long Island Sound region and has completed several important steps in extending its efforts. Previous LISTOS activities are helping inform several forthcoming field campaigns planned for the region during 2023 which involve the Environmental Protection Agency (EPA), National Aeronautics and Space Administration (NASA), National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation, and others. LISTOS projects in 2022 and 2023 will provide additional monitoring capacity during the campaigns. These include New York State Department of Environmental Conservation’s highly successful ongoing continuous formaldehyde monitoring in NYC (Bronx Botanical Garden), the north shore of Long Island (Flax Pond near Stony Brook), and a special monitoring site on Staten Island.
- The Staten Island site is also collecting speciated monitoring information on important volatile organic compounds emitted by numerous industrial and other sources in this area immediately upwind of New York City. Professor Jay Turner at Washington University in St. Louis is using this data set along with wind direction measurements in a source attribution analysis. Professor

Fred Moshary at City University of New York (CUNY) has completed the build-out of an ozone Light Detection and Ranging(LIDAR) system and is now obtaining vertical profiles of transported ozone layers within the NYC region. It is currently being adapted for use in a mobile trailer that can travel to key areas within the LISTOS region to complement future field campaigns. The ozone LIDAR will also be integrated into the Tropospheric Ozone LIDAR Network (TOLNet) jointly initiated by NASA, NOAA, and EPA.

(Air Quality and Public Health, continued...)

Dr. James Schwab at University at Albany has now successfully launched a special air quality monitoring site at Heckscher State Park on Long Island's south shore that will be continuing operations during the 2022 and 2023 ozone seasons. This site is investigating the influence of the New York City urban pollution plume transported along and off the southern shore of Long Island.

The Northeast States for Coordinated Air Use Management (NESCAUM) is now running a high-resolution photochemical grid model for simulating air quality in the LISTOS region. NESCAUM is collaborating with researchers at NYS DEC, EPA, Columbia University, Massachusetts Institute of Technology, George Washington University, and elsewhere to incorporate LISTOS measurements and remote satellite observations into regional air quality modeling that help to inform New York's air quality and energy policy decisions.

- The following are methane field research projects underway this quarter:
  - **University of Rochester – Lee Murray:** This project will improve and expand the methane monitoring network throughout New York State at six existing observation sites as well as add an additional seventh site. This project will also work to develop a new top-down, gridded methane emissions inventory for New York State and the surrounding region, which can then be used alongside bottom-up observations.
  - **Columbia University – Roisin Commene:** This project aims to perform source apportionment of methane and similar emissions throughout New York State. This project will quantify year-round and seasonal CH<sub>4</sub> in downstate New York and the NYC metropolitan area and determine how much methane enters the atmosphere from biogenic sources.
  - **Ithaca College – Eric Liebensperger:** This project aims to provide supporting data to current methane emission monitoring efforts. This project is collecting field measurements of methane emissions around (walking measurements) and above (aircraft) natural gas compressor stations and agricultural establishments.

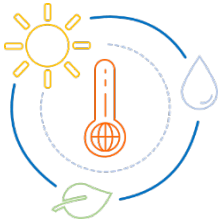


## Biomass

- The Environmental Protection Agency (EPA) proposed rulemaking to refine current test methods that will improve particulate matter (PM) measurement methods, these items have been part of the EPA discussions that have been informed by NYSERDA funded research.
- As part of the ongoing dialogue with EPA, the EPA released an official corrections list for residential wood heaters, clearly articulating what report deficiencies require immediate retesting and those that will eliminate the 5-year waiver eligibility for retesting.

<https://www.epa.gov/system/files/documents/2022-06/correctiveactionlist.pdf>





## Climate Change

- During this quarter, the eight technical workgroups of the New York State Climate Impacts Assessment delivered their first full chapter drafts for review. Although there is much work still ahead, the draft chapters are well on their way. Additional meetings with Sector Advisors will happen next quarter; the Sector Advisors are bringing additional perspectives to the work and providing feedback and input to their respective sectors. We will also begin developing our process for peer review of the final chapters.



## Ecosystem Response

- Best wishes to Diane Bertok, who has taken a new position at New York State Parks. We want to thank Diane for all the great work over the last five years leading NYSERDA ecosystems, agricultural, and solar components of the Environmental Research Program and for being a valuable team member over the last five years. Best wishes Diane, it has been a real pleasure!
- Expected in Fall 2022, NYSERDA is planning a solicitation that will seek proposals from knowledgeable and experienced organizations or teams interested in conducting the routine sampling of Adirondack lakes and streams as part of the Adirondack Long Term Monitoring (ALTM) Program. The selected contractor(s) will assist in maintaining the consistency and continuation of this long-term monitoring data set and advancing the goals of the ALTM Program to better inform policy decisions. Visit <https://www.nyserdera.ny.gov/Funding-Opportunities/Current-Funding-Opportunities> for current solicitation and funding opportunities.
- Michael McHale and the United States Geological Survey team have worked hard to refine the [Adirondack Long-Term Stream and Soil Monitoring](#) and [Adirondack Long-Term Lakes Monitoring \(ALTM\)](#) project pages. These pages provide a background on the Adirondack Long-Term Monitoring Program, sites, and monitoring data.

Diane Bertok at Honnedaga Lake Tributary



Photo Credit: NYSERDA



## Land Based-Renewables

- A team from Tetra Tech, led by Peggy Grant, has been making progress on three studies they are conducting as part of their agreement (#154274) awarded through PON 4270: Environmental Research – PV Site Design, Information Gaps, and Mitigation Opportunities. This project is looking at utility scale solar effects on groundwater hydrology and wintering raptor and grassland bird threatened and endangered (T&E) species; and reviewing literature to identify decommissioning best management practices and mitigation opportunities.

In May 2022, a grassland breeding bird survey began and will continue through July 2022. The team also continued to collect groundwater levels, temperature, and pressure as well as air temperature and pressure measurements at another one of the three sites. They have been collecting groundwater and air data at this site since April 2021.

Van Essen Diver Monitoring Water Level Data at Tetra Tech Site



Photo Credit: NYSERDA

- The Agricultural Technical Working Group (A-TWG) convened in January and February 2022. A-TWG Support Staff presented a scoring structure for the agriculture, environment, and collaboration/innovation sections of the Smart Solar Siting Scorecard (“Scorecard”) and described the difference between a mandatory and an optional strategy for discussion with the A-TWG. In addition, NYSERDA presented information on the connection between the 10 GW Distributed Solar Roadmap and agriculture. See the [press release](#) announcing its approval by the Public Service Commission on April 14, 2022. Keep up to date with what the A-TWG is up to by visiting the [A-TWG website](#).



## Off-Shore Wind

- Morgan Brunbauer, NYSERDA's Offshore Wind Marine Fisheries Manager, attended the April meeting of the Mid-Atlantic Fisheries Management Council. At this meeting, the Bureau of Ocean Energy Management (BOEM) Director Amanda Lefton and BOEM staff were in attendance to discuss updates and answer questions related to offshore wind development and fisheries impacts. This meeting provided a unique opportunity for Morgan to represent the State of New York and engage with BOEM Director Lefton and BOEM staff while also interacting with regional offshore wind developers, commercial fishermen, and council members to strengthen regional collaboration and partnerships necessary for co-existence in the NY Bight while also promoting the goal of developing offshore wind in an environmentally responsible manner. Additionally, Anthony DiLernia, NYSERDA's Recreational Fisheries Liaison, was present to address specific questions and share information to better educate the recreational community about offshore wind activities in the NY Bight.
- The Ports Cumulative Impact Assessment and Alternatives Analysis Study was published in mid-May. The goal of this study was to assist with planning for current and upcoming offshore wind energy projects. In addition to providing a clearer understanding of the potential environmental and sociological implications of port upgrades in support of New York State's goal of 9 gigawatts of offshore wind energy by 2035, the study also provides context for individual port upgrades by supporting the environmental impact assessments for those upgrades. The final study can be found here under the Economic Growth and Workforce Development Heading: <https://www.nyserdera.ny.gov/All-Programs/Offshore-Wind/Focus-Areas/Impacts-and-Benefits>
- Two Project Advisory Committee (PAC) meetings were held for the Addressing Commercial Fishing Access within Wind Energy Areas Study. The project team, led by Rebecca Green at the National Renewable Energy Laboratory, provided final information on the scenario-building effort for maximizing fishing and offshore wind energy generation and proposed pilot project toolbox approach. The final study report is expected to be published in late 2022.
- The [2022 State of the Science on Wildlife and Offshore Wind Energy](#) will be held in Tarrytown, NY July 26-28. The two-day Workshop includes 50 presentations from wildlife experts, state and federal regulators, and the offshore wind industry. Free virtual registration will be open through the Workshop.

## State of the Science Workshop on Wildlife and Offshore Wind Energy

Building on Existing Knowledge and Emerging Collaborations

July 26-28, 2022



(Offshore Wind, continued...)

- The Bureau of Ocean Energy Management (BOEM) continues to make progress on developing a draft mitigation framework in response to their Request for Information (RFI) on avoiding, minimizing and if needed, compensating for impacts from offshore wind energy projects to commercial and recreational fisheries. The [Draft Fisheries Mitigation Guidance](#) was published on June 23, 2022, for public review and input during the 60-day comment period. Guidelines developed through this process may be updated periodically based on public feedback and evaluation by BOEM staff. Comments on the guidance can be submitted via [regulations.gov](https://www.regulations.gov) from June 23 to August 22, 2022, under Docket number BOEM-2022-0033. NYSERDA continues to be a part of these ongoing discussions with BOEM, other states, and stakeholders. Further details can be found here, including information about planned public webinars: <https://www.boem.gov/renewable-energy/request-information-reducing-or-avoiding-impacts-offshore-wind-energy-fisheries>
- The Environmental Technical Working Group (E-TWG), in collaboration with the U.S. Fish and Wildlife Service (USFWS) and the Bureau of Ocean Energy Management (BOEM), is supporting development of guidance for pre- and post-construction monitoring to detect macro-to meso-scale changes in avian distributions and habitat use in relation to offshore wind development. An expert Specialist Committee co-chaired by USFWS and BOEM biologists is developing guidance that identifies 1) key displacement- and attraction-related questions, 2) appropriate methodologies to address those questions, and 3) study design and analytical recommendations specifically for boat-based and aerial surveys. More information on this effort can be found here: <https://www.nyetwg.com/avian-displacement-guidance>

#### Learning from the Experts Webinar Series



**Learning** from the  
**Experts**

This webinar series is hosted by NYSERDA's offshore wind team and features experts in offshore wind technologies, development practices, and related research.

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- The offshore wind Learning from the Experts webinar series continues to host leaders in the offshore wind industry to discuss wind technologies, development practices, regulatory processes, and research initiatives and is looking for feedback to inform future webinar topics. A short survey can be filled out here: <https://nyserda.seamlessdocs.com/f/LearnFromtheExperts>.

Photo Credit: NYSERDA

# Program Reports and Papers

Program Reports & Papers posted recently include:

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

Shukla, K., Seppanen, C., Naess, B., Chang, C., Cooley, D., Maier, A., Divita, F., Pitiranggon, M., Johnson, S., Ito, K., & Arunachalam, S. (2022). Zip Code-Level Estimation of Air Quality and Health Risk Due to Particulate Matter Pollution in New York City. *Environ, Sci, Technol.*, 56(11), 7119-7130. <https://doi.org/10.1021/acs.est.1c07325>.

## ***Ecosystems***

[22-07 Changes in Stream Chemistry in the East-Central Adirondack Region of New York State, 2010-2018 \[PDF\]](#)

