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## ENVIRONMENTAL RESEARCH

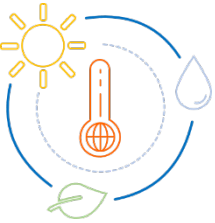
Q2

### Environmental Research Program and Science Advisors

NYSERDA's Environmental Research Program is pleased to introduce one new member to the Environmental Research Program Advisory Group.

**Judith Abbot:**

- Judith (Judy) Abbott is a veteran research scientist with the New York State Department of Health's Center for Environmental Health. Ms. Abbott is an expert in human health risk assessment and is knowledgeable in the use and application of environmental models, as well as Federal and NYS regulations and building codes. She is skilled at evaluating study designs and interpreting environmental data, as well as identifying policy-relevant findings. Her work at DOH also supports NYS' climate, energy, and environmental justice programs. Ms. Abbott led numerous research projects including studying the emissions from open burning of residential waste and ambient air impacts associated with residential wood-fired outdoor hydronic heaters. She was part of the team that developed DOH's fish and game consumption advisories and established NYS Soil Clean-up Objectives. Over her career, she has been a member of numerous project advisory committees for NYSERDA's Environmental Research Program and is a long-standing member of Northeast States for Coordinated Air Use Management's Air Toxics and Public Health Committee.
- Ms. Abbott has a Masters Degree in Environmental Science from Oregon Graduate Institute and has dual Bachelor of Science Degrees in Chemistry and Biology from Skidmore College.



## Climate Change

- A contractor (Arup) was selected to perform an initial analysis of the resilience concerns surrounding electrification. The project will increase our understanding of the many aspects of resilience that come with increased electrification of buildings and other systems in the state. The work will entail laying out the multiple aspects of resilience that will need to be considered, including sequencing of analysis and how the pieces fit together; prioritizing the various analyses that will need to be done; and performing some of the analyses.
- Initial work on the statewide Climate Impacts Assessment has continued. A Call for Experts was issued in April to solicit applications for co-chairs, members, and advisors for each of the sectoral working groups. The selection process has been time consuming, but co-chairs have been selected for all but one slot, and the process to select working group members from the submissions is now under way.



## Off-Shore Wind

- NYSERDA published the Offshore Wind Submarine Cabling Overview Document for regulators and fishermen, pulling together concerns and information about the many variables (environmental, technological, fishing) that are considered during project development. This in-depth document will help improve conversations that both regulators and stakeholders have regarding this topic. The final document can be found [here](#).
- A virtual F-TWG meeting was held on May 13, 2021. Topics for discussion included an update on the status of the 2020 OSW RFP including highlights of the Empire Wind 2 and Beacon Wind Projects; a brief overview on the process for updating the NYSERDA Fisheries Mitigation Plans; a BOEM update of activities within the NY Bight; updates from the Sunrise and Empire Wind 1 Projects; and a discussion about the Overview of Fisheries Compensation Document. The next meeting will be held late Q3 of 2021. Additional details about the F-TWG can be found [here](#).

(Offshore Wind, continued...)

- Seven working groups formed following the 2020 State of the Science Workshop on Wildlife and Offshore Wind Energy have published [reports](#) identifying research priorities for understanding offshore wind's cumulative impacts on sea turtles, marine mammals, fishes and aquatic invertebrates, benthos, birds, bats, and oceanographic processes in the eastern United States. The working group leads presented their results and common themes during a [webinar](#) held on May 21, 2021.
- The NSYERDA Offshore Wind team launched the [Learning from the Experts](#) webinar series to connect the public with independent experts in key topics on offshore wind, including wind farm technologies, development practices, regulatory processes, and research initiatives.
- The Wildlife Conservation Society (WCS) has published a Passive Acoustic Monitoring (PAM) workshop report, supported by NSYERDA, that brought together local, state, and regional research and government organizations to explore opportunities for coordinated and optimal PAM research priorities for the New York Bight (NYB) and mid-Atlantic region, with a focus on marine mammals. The discussions focused on: 1) outlining and establishing commonalities in current NYB PAM data resources and identifying opportunities for collaboration and data synthesis; 2) exploring the importance of data collection and analysis standardization across projects; and 3) identifying PAM research priorities and opportunities to collaborate moving forward, both within the NYB, as well as across the Mid-Atlantic region.
- Wildlife Conservation Society. 2021. New York Bight Passive Acoustic Monitoring Data Synthesis Workshop (October 2020) Summary Report. Prepared for the New York State Energy Research and Development Authority (NYSERDA). March 2021. [Download report](#).
- The Environmental Technical Working Group held [meetings](#) in April and June.



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## Air Quality & Public Health

- A Project Advisory Committee (PAC) meeting was held for the Long-term Air Quality Monitoring project managed by Dr. James Schwab of the Atmospheric Sciences Research Center at SUNY Albany. Dr. Schwab has worked closely with NYSDEC on this project to measure air quality and evaluate new instruments, perform air quality trends analysis and better understand atmospheric processing. There are three monitoring sites – Whiteface Mountain, Pinnacle State Park, and Queens College. The results from this research of more than two decades has been used to inform air quality planning and decision making in NYS.
- A project kick-off meeting was held for The Fund for Public Health in NYC/ NYC Health’s new project, “Temporal and Spatial Characterization of Trends and Their Health Effects.” The primary objectives of this study are: (1) characterize changes in temporal and spatial patterns in air quality over the past three decades and relate them to energy-related policy changes and market-driven fuel type changes; (2) conduct epidemiological time-series analysis covering a range of respiratory and cardiovascular morbidity and mortality in the corresponding segmented periods and estimate risk estimates and attributable counts changed over time; and (3) conduct health impact assessment retrospectively corresponding to the epidemiological analyses.
- This project will provide a comprehensive assessment of the chain of accountability from the impacts of various energy-related policy and market-driven air quality changes on health outcomes in a series of segmented periods between 1990 and 2020. The NYC Health Department contextualizes air quality research in a larger public health perspective where there are glaring health disparities across social class and racial or ethnic groups. They will examine the role of race and ethnicity, neighborhood poverty, and other social risk factors as effect modifiers in the proposed analysis, as they currently do for their analysis of extreme weather impacts on morbidity and mortality.
- NYSERDA’s Environmental Research Program and NYSDEC’s Bureau of Air Quality Analysis and Research co-sponsored a webinar, “Zip-code Level Air Quality and Health Impacts Screening Tool for Environmental Policy Evaluation in New York City,” by Sarav Arunachalam, Ph.D. of the University of North Carolina at Chapel Hill.



## Biomass

- Jake Lindberg of the Department of Materials Science & Chemical Engineering at Stony Brook University successfully defended his dissertation, “Characterization of Particulate Matter Emissions from Residential Biomass Combustion Appliances,” on April 30, 2021! Congratulations, Jake!
- NYSERDA’s Biomass Heating Research efforts have included support of US EPA’s Office of Air Quality Planning and Standards and Office of Research and Development as they embark on research to validate and adopt NYSERDA’s Integrated-Duty Cycle Test Method for Certification of Wood Fired Stoves Using Cordwood: Measurement of Particulate Matter (PM) and Carbon Monoxide (CO) Emissions and Heating Efficiency (IDC). This support has included training by the Northeast States for Coordinated Air Use Measurement (NESCAUM) on the use of the Tapered Element Oscillating Microbalance (TEOM) with sampling from a dilution tunnel, the fuel-load calculator and the protocol itself. The IDC is far more representative of actual in-use wood burning than other test protocols used to certify wood stoves. NYSERDA developed the IDC for this and other wood burning technologies because innovation in technology performance can only be promoted by challenging the technology under conditions representative of those the appliance must respond to once installed in the home. EPA approved this method as a Broadly Applicable Alternative Test Method (ALT-140) for certification of wood stoves.
- NYSERDA’s Environmental Research Program and NYSDEC’s Bureau of Air Quality Analysis and Research co-sponsored a webinar, “Residential Wood Stove Test Methods: Understanding What the Numbers Mean,” given by Cindy Heil and Steve Hoke, ADEC (Alaska Department of Environmental Conservation), Lisa Rector, NESCAUM, Randy Orr (NYSDEC) and Elizabeth Zeccola (NYSDEC).

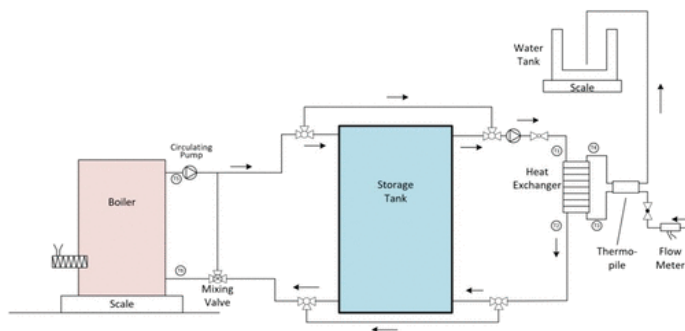


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## Ecosystem Response

- NYSERDA virtually attended the Long-term Monitoring (LTM) Cooperators Meeting held by the US EPA in May. LTM Cooperators from the five LTM regions - Vermont, Northern New England, Adirondacks, Catskills, and Ridge/Blue Ridge provided an update on their region’s lake and stream sampling program and the impact that COVID had on their program over the last year. NYSERDA, along with the NYS DEC and Adirondack Lakes Survey Corporation (ALSC), provided an update to the group, which included among other things the upcoming NYSERDA-supported SCALE (Survey of Climate change & Adirondack Lake Ecosystems) workshop to be held in Saratoga, NY this July.
- During the LTM Cooperators Meeting, the US EPA informed the attendees that approved manuscripts for a special issue of Atmospheric Environment, titled “The 30th Anniversary of the Clean Air Act Amendments of 1990” were now posted [on-line](#). Two of the manuscripts, one discussing aluminum chemistry trends in Adirondack headwater streams (Lawrence et al., 2021) and the other discussing biological and chemical recovery of acidified Catskill mountain streams (Baldigo et al., 2021), were supported by NYSERDA. These two manuscripts can also be found on NYSERDA’s [website](#).



Photo Credit: NYSERDA Agreement. 154270



## Land Based-Renewables

- During this quarter, the Agricultural Technical Working Group (A-TWG) convened twice, once in April and again in June. During these two meetings, over 20 stakeholders, which include State agencies (NYSERDA, NYS AGM, NYS DEC), non-governmental agricultural organizations, local governments, and solar developers discussed the creation of a charter which defines the purpose, scope, and framework of the group; participated in a survey to help identify the data needs and topics that the group felt were most important to address; and decided as a group to support and develop a “Solar Scorecard” that will look at multiple areas of solar siting, design, and site management practices from the perspective of environmental, agricultural, and climate interests. Information about the A-TWG, including meeting minutes, presentations, members, and the charter can be found on the A-TWG [website](#).
- During this spring, work began on the pre-construction field survey to assess the wildlife communities living on a capped landfill and an adjacent woodland area on a Town-owned property in New Paltz (Agreement #154270 – Walden Environmental Engineering). The goal of the project is to demonstrate and assess how the design and management of a wildlife-friendly solar array may impact wildlife habitat in NYS, specifically that for birds and insect pollinators. As part of the pre-construction field survey, a field team led by Dr. Belinsky of SUNY New Paltz has conducted a series of 10-minute point counts at the site to quantify bird diversity, richness, and community composition; and is currently measuring the types and quantity of insect pollinators at the site by using aerial nets and soap bowl traps (see photos). We are looking forward to seeing the results!



Photo Credit: NYSERDA Agreement. 154270

## Program Reports & Papers posted recently include:

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

[Ambient PM<sub>2.5</sub> organic and elemental carbon in New York City: changing source contributions during a decade of large emission reductions](#)

[The impacts of transported wildfire smoke aerosols on surface air quality in New York State: A multi-year study using machine learning](#)

### ***Ecosystem Response to Atmospheric Deposition of Sulfur, Nitrogen and Mercury***

[The Buck Creek-Boreas River Adirondack Watershed Monitoring Program](#)