



Photo Credit: Living Stone in Process for Installation of the Export Cable for the South Fork Wind Farm, Fishing Liaison Officer Maxwell Hall

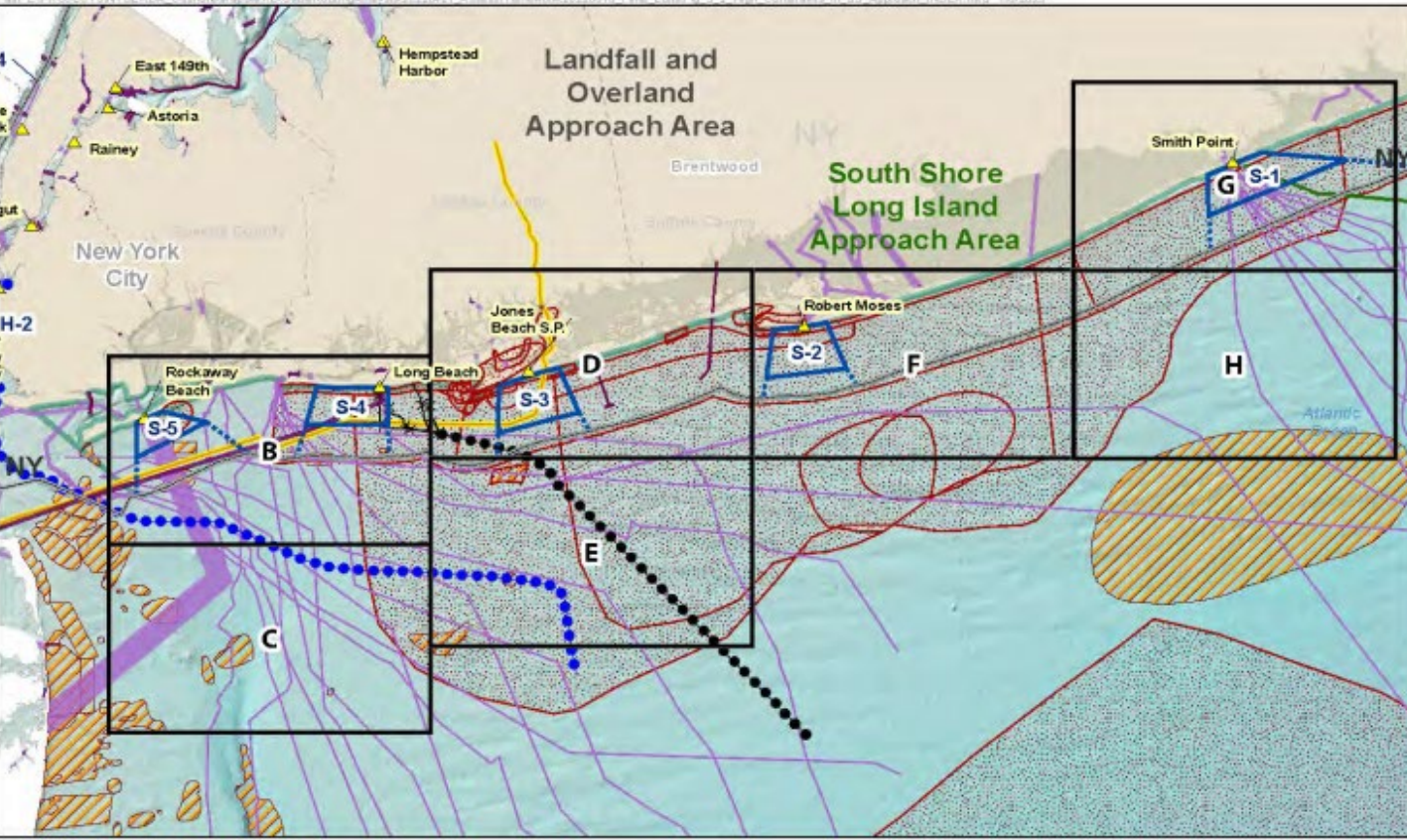


### Offshore Wind

- **New Report on Offshore Wind Cables** - NYSERDA released the [Offshore Wind Cable Corridor Constraints Assessment](#), an analysis to better understand siting offshore wind cables in New York State waters, at landfall, and along overland routes. The Assessment was a collaborative effort across New York State agencies through a convened Cables Working Group, and included stakeholder input by environmental and maritime organizations, the offshore wind industry, federal agencies, adjacent states and others. The report documents undersea resources and uses, fisheries, navigation and infrastructure constraints, and other factors at undersea, interconnection points, and overland areas that might affect the feasibility of siting offshore wind cables.
- The third New York State offshore wind [solicitation](#) closed on January 26, 2023. NYSERDA received a robust response, with more than 100 total proposals for eight projects from six developers – representing a record setting level of competition. Included in the solicitation were requirements for Environmental and Fisheries Mitigation Plans, \$10,000 per megawatt for regional monitoring funds, and site and environmental transparency, as well as other environmental and fisheries considerations.

(Offshore Wind, continued...)

Offshore Wind Cable Corridor Constraints Assessment Map of Considered High Constraints within the South Shore Approach Area



- Landing
- State Line
- Empire Wind- EW1 Potential Export Cable Route
- Empire Wind- EW2 Potential Export Cable Route (Line with 'x's for shore landing alternatives)
- ENC Pipeline (Submarine/on land)
- Sunrise Wind- Potential Export Cable Route
- Neptune Submarine Cable
- ENC Cable/ NASCA Cable
- ENC Cable Area
- NY Recreational Fishing
- NJ Prime Fishing Grounds
- Approach Area Boundary
- Landfall and Overland Area
- Study Zones
- Zone Extensions to State Boundary



Note: The following map panels may display fewer layers than depicted on this index map. Individual grid map legends will only show high constraint resources present based on geographical data for that area.

Photo Credit: NYSDERDA

- **New Publication** – NYSDERDA, along with its technical leads (Biodiversity Research Institute and Tetra Tech) for the Environmental and Fisheries Technical Working Groups (E-TWG and F-TWG) published the journal article [“Effective Stakeholder Engagement for Offshore Wind Energy Development: The State of New York’s Fisheries and Environmental Technical Working Groups”](#) in the April edition of Marine and Coastal Fisheries. This article highlights the stakeholder engagement approach implemented by New York through the development of TWGs, as a means of identifying needs for environmental and fisheries resources to inform responsible OSW development within New York and regionally across the eastern United States. Lessons learned from the TWG process are highlighted to inform how stakeholder engagement efforts can be advance in other regions.

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- **OSW Research Proposals** - NYSERDA is reviewing proposals received from Program Opportunity Notice (PON) 5226 for \$2.5 million to support environmental and fisheries research related to offshore wind. Proposals were accepted to support the Enhancement of Sustainable Fisheries, including efforts to promote a path toward co-existence with offshore wind, and Changes in Biological Characteristics of Benthic Ecosystems by understanding opportunities for ecological enhancement. Awardees are expected to be announced later this summer with the goal of starting research this fall.
- **Regional Fisheries Compensation Fund** - NYSERDA continues to support the multi-state effort for the establishment of a regional fisheries compensatory mitigation fund administrator. Comments from the December 2022 Request for Information (RFI) were reviewed by the states and incorporated into a revised scoping document. This effort supports the implementation of the federal Bureau of Ocean Energy Management's (BOEM) Draft Fisheries Mitigation Framework in a fair, equitable, transparent and inclusive manner for both impacted Atlantic Coast fishing industry members and offshore wind developers. For more details see <https://offshorewindpower.org/fisheries-mitigation-project>
- **Offshore Wind and Recreational Fishing** - Captain Anthony (Tony) DiLernia, NY's OSW Recreational Fisheries Liaison, attended the New York City Boat Show from January 25th -29th, the New York Sportfishing Federation Trade Show February 18th-19th in Freeport, the Atlantic City Boat Show from March 1st - 5th, and the Saltwater Fishing Expo in Edison, NJ From March 16th -19th. Captain DiLernia manned a NYSERDA booth focusing on issues important to the recreational fishing community and answered general questions about offshore wind and offshore wind projects. Over 50,000 people attended the shows and hundreds stopped by the booth to learn about offshore wind in the NY Bight—and the work NYSERDA is doing to develop the offshore wind industry in an environmentally-responsible and cost-effective manner.

Captain DiLernia Engaging with Stakeholders at New York City Boat Show (left) and Freeport Show (right)



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- **Cable Laying Vessel Tour** - On February 3rd, Morgan Brunbauer, NYSERDA's Offshore Wind Marine Fisheries Manager, had an opportunity to tour the Living Stone, the cable installation vessel for Ørsted's South Fork Wind Project, while the vessel was docked in Providence, Rhode Island. During this visit he learned details on vessel operations, the mechanics of cable laying activities, and observed the physical cable.

NYSERDA's Morgan Brunbauer onboard Ørsted's Living Stone



Photo Credit: NYSERDA

- **Master Plan 2.0 Site Assessment Studies** - The Environmental and Fisheries Technical Working Groups held meetings in early March and Mid-April respectively, to discuss the objectives of the Master Plan 2.0 Site Assessment Studies underway to inform New York's future recommendations to BOEM for the advancement of potential wind energy development areas beyond the 60-meter contour. The studies include five focus areas: marine mammals and sea turtles, birds and bats, fish and fisheries, benthic habitats, and an environmental sensitivity analysis. In addition, a Deep-Water Wind Technology Considerations Study will provide an overview of the next generation deep water fixed and floating turbines as well as the possible impacts to environmental and fisheries resources. Collectively, these studies will identify areas in the region of greatest and least risk to environmental and fisheries resources and users and recommend to BOEM areas or topics for further assessment while ensuring a continued,

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robust, transparent, and proactive approach to meeting New York's goals of 9GW and beyond. Final reports are planned for later this fall. More details from these meetings can be found on both the E-TWG website ([www.nyetwg.com](http://www.nyetwg.com)) and the F-TWG website ([www.nyftwg.com](http://www.nyftwg.com))

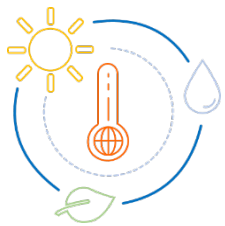
#### Hudson River Estuary Clean Energy Workshop



- NYSERDA hosted the Hudson River Estuary Clean Energy Workshop in April to provide information and updates about evolving renewable energy activities in the Hudson River estuary, from Albany to New York Harbor. The workshop focused on underwater cabling, vessels, and port development to support renewable energy. Attendees participated in breakout groups to identify concerns, knowledge gaps, and connect with relevant resources.

Photo Credit: NYSERDA

- NYSERDA continues to host a monthly offshore wind webinar series, [Learning from the Experts](#). Recent webinars have examined hydrogen power, emergency response planning, and bird monitoring.



### Climate Change

- **Harmful Algal Blooms and Climate Change** - This quarter, NYSERDA released the final report for a project on cyanobacterial harmful algal blooms (CHABs) and climate change: [Climate Change Vulnerability of Eutrophication and Algal Blooms in New York State](#). Through the use of mechanistic water quality models, this project explored the possible impact future climate conditions may have on hydrodynamics and the likelihood of CHABs in three Central New York Finger Lakes. The project results suggest that future climate change will produce conditions in lakes that favor the growth of cyanobacteria and increase the likelihood of CHABs.
- **Climate Impact Assessment** - The technical chapters of the Climate Impacts Assessment (CIA) are undergoing refinement in anticipation of peer review. Work has also begun on various other outreach products, such as fact sheets and summaries.
- **Extreme Heat Adaptation Plan** - NYSERDA staff have been working closely with DEC and state agencies on the Extreme Heat Adaptation Plan. With a target release in early 2024, the plan will include specific actions the State can take to support local government and community efforts to increase resilience to extreme heat.



## Ecosystem Response

- The 20th annual Adirondack Research Forum was held on February 27th-28th at the Adirondack League Club (ALC) in Old Forge, NY. Experts in fisheries, climate change, harmful algal blooms, and monitoring presented their research in a mix of talks and poster presentations. NYSERDA funded projects presented at the Adirondack Research Forum included USGS' New York State Climate Change Assessment and Cornell and Rensselaer Polytechnic Institute's Survey of Climate Impacts on Adirondack Lake Ecosystems (SCALE) workshop.

Common Loon



Photo Credit: Nina Schoch. Adirondack Center for Loon Conservation

- **Loons and Climate Change** - The Adirondack Center for Loon Conservation released their latest report "[Are Loons on Thin Ice with Climate Change](#)" documenting impacts of climate change on the Adirondack Common Loon population. Direct effects of climate change include increased exposure to avian diseases, reduced reproductive success and ice-in events that make them vulnerable to missing essential migratory windows.

- The [Adirondack Long-Term Monitoring at Huntington Forest website](#) is operational and continues to be updated by the State University of New York, College of Environmental Science and Forestry (SUNY-ESF). The site includes information of Huntington's atmospheric deposition, meteorology, hydrology, biogeochemistry, and ecosystem monitoring programs as well as real-time data visualizations. NYSERDA supports mercury deposition, atmospheric mercury, meteorological, and soil monitoring at the Huntington Wildlife Forest through the Adirondack Long Term Monitoring program.



## Land Based-Renewables

- **Optimizing Solar and Agriculture** - In 2020, NYSERDA competitively selected a team at Cornell to monitor microclimates at solar photovoltaic (PV) sites to determine opportunities for land-use optimization and dual solar-agriculture use. The team recently published a paper in Applied Science on the [Potential for Agrivoltaics to Enhance Solar Farm Cooling](#). The team developed a physics-based tool to estimate the costs and benefits of co-locating solar panels and commercial agriculture from the perspective of increased power conversion efficiency and solar-panel longevity. Results show that co-locating solar panels and commercial agriculture can increase solar panel power production efficiency while also enabling food production on the same land. A summary of the article can be found here: <https://www.sciencedaily.com/releases/2023/03/230306143351.htm>

(Land Based-Renewables, continued...)

- **Avian Use of Solar Sites** - Among the 2020 competitive awards was also a team at DNV GL, which has been conducting research on avian use of utility-scale solar facilities in New York and their impact on avian biodiversity and habitat use. The team conducted field surveys at 13 solar facilities and paired reference sites in cultivated crops, hay/pasture fields, shrub, and forest

Eastern Bluebird Nest on Photovoltaics Racking Structure



Photo Credit: NYSERDA

habitats. The team is evaluating preliminary research findings but sent notice of an exciting find of an eastern bluebird nest on a PV racking structure (photo at left). Due to the novelty of the observation, a letter will be submitted to the Wilson Journal of Ornithology.

- The **Agricultural Technical Working Group (A-TWG)** and specialist committees have been active during the first quarter of 2023. The “Agrivoltaics” Specialist Committee met twice to continue its inquiry into the feasibility of agrivoltaic deployment in New York. One meeting featured a guest speaker from NREL’s INSPIRE program. The Smart Siting Scorecard SC reconvened for the first time since early 2022 to provide input and refine approaches to reduce solar siting impacts (See [Smart Solar Siting](#) for more info). The February A-TWG meeting received updates from the two specialist committees, discussed relevant legislative updates, and deliberated on the potential formation of another specialist committee to focus on regional impacts from multiple solar developments on agricultural land. Please visit the [A-TWG website](#) for more information, including copies of the agendas and presentations.

### Air Quality and Public Health

- **Environmental Protection Agency (EPA) Office of Inspector General Report on EPA’s Residential Wood Heater Program** – On February 28, 2023, EPA’s Inspector General’s (IG) Office issued a report regarding EPA’s certification program for residential wood heaters stating, “regulators and the public cannot rely on the wood heater program to ensure that wood heaters reaching consumers comply with emission standards.” The IG report detailed concerns about the use of Federal Test Methods (FTM) that do not assess wood-fired appliances in a manner that can assess whether or not a certified appliance will operate cleanly



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

when installed in homes. The IG report unfortunately substantiates concerns raised by NYSERDA researchers, who have voiced concerns about residential wood heater test methods for more than ten years. NYSERDA continues to invest in the development of Integrated Duty Cycle (IDC) test methods, which EPA has found present the best pathway forward for new test methods. EPA and NYSERDA have been conducting testing to provide precision and variability data to support the promulgation of IDC test methods as the new Federal Reference Methods (FRM) in the next New Source Performance Standards (NSPS). We anticipate the research will conclude in the coming year. The NYSERDA-supported research is being conducted by the Northeast States for Coordinated Air Use Management (NESCAUM), and partners ClearStak and Hearth Lab Solutions. The Inspector General report can be found here: <https://www.epa.gov/office-inspector-general/report-epas-residential-wood-heater-program-does-not-provide-reasonable>

- **Briefing the White House on methane research** – NYSERDA staff held high-level briefings with state and federal agencies on methane monitoring field study activities. Dr. Ellen Burkhard briefed a federal interagency working group (IWG) comprising staff from The White House Office of Management and Budget, Office of Science and Technology Policy, National Institutes of Standards and Technology, EPA, National Aeronautics and Space Administration (NASA), and National Oceanic and Atmospheric Administration (NOAA) in relation to the draft Federal Strategy to Advance an Integrated U.S. Greenhouse Gas Monitoring & Information System.

In addition, Dr. Burkhard and project investigators briefed NYS DEC staff from the Divisions of Air, Minerals, and Materials Management on the status and preliminary findings from NYSERDA-funded methane monitoring field studies.

- **New Project Kick-Offs** – Three projects held kick-off meetings this quarter:
  - *Refined source apportionment of ambient volatile organic compounds (VOCs) and volatile chemical products (VCPs) in NYC metro area*, PI's: Aynul Bari, Sarah Lu, SUNY Albany and Phil Hopke, U. of Rochester;
  - *Detailed speciation of VOC-SVOC sources around NYC and their application to source apportionment during Atmospheric Emissions and Reactions Observed from Megacities to Marine Areas (AEROMMA) 2023*, PI Drew Gentner, Yale University;
  - *The Relative Influence of Local/Regional vs. Long Distance Sources of Chemically Resolved Particulate Matter in NYC and Long Island Region*, PI Drew Gentner, Yale University.
- **New Publications** – There were four publications from the air quality and public health portion of the program. Titles and links to those publications are available below.



# Program Reports and Papers

## Program Reports & Papers posted recently include:

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

Commene, R., Hallward-Driemeier, A., and Murray, L. T.: Intercomparison of commercial analyzers for atmospheric ethane and methane observations, *Atmos. Meas. Tech.*, 16, 1431–1441, <https://doi.org/10.5194/amt-16-1431-2023>, 2023

Zhang, Jie, Junfeng Wang, Yele Sun, Shan Zhou, Manish Shrivastava, Alexandra Catena, Nga Lee Ng, Qi Zhang, and James Schwab, “The Response of Summertime Organic Aerosol Composition to Emission Controls in the Northeastern United States”, *J. Geophys. Res. Atmos.* 127, e2022JD037056. <https://doi.org/10.1029/2022JD037056>

Zhang, Jie, Junfeng Wang, Yele Sun, Jingyi Li, Matthew Ninneman, Jianhuai Ye, Ke Li, Brian Crandall, Jingbo Mao, Weiqi Xu, Margaret J. Schwab, Weijun Li, Xinlei Ge, Mindong Chen, Qi Ying, Qi Zhang and James J. Schwab, “Insights from ozone and particulate matter pollution control in New York City applied to Beijing”, *npj Climate and Atmospheric Science* (2022) 5:85, ; <https://doi.org/10.1038/s41612-022-00309-8> (npj designates Nature Partner Journal)

Zhao, K., Wu, Y., Huang, J., Gronoff, G., Berkoff, T., Arend, M., Moshary, F., 2023. Identification of the roles of urban plume and local chemical production in ozone episodes observed in Long Island Sound during LISTOS 2018: implications for ozone control strategies, *Environment International*, 174, 107887, <https://doi.org/10.1016/j.envint.2023.107887>

### ***Ecosystems***

Lawrence, C. E., Casson, P., Brandt, R., Schwab, J. J., Dukett, J. E., Snyder, P., Yerger, E., Kelting, D., VandenBoer, T. C., and Lance, S.: Long-term monitoring of cloud water chemistry at Whiteface Mountain: the emergence of a new chemical regime, *Atmos. Chem. Phys.*, 23, 1619–1639, <https://doi.org/10.1016/j.apenergy.2022.120478>

Schoch, N., E. Prosser, and j. Denny. 2023 Are Llons on Thin Ice with Climate Change? Adirondack Center for Loon Conservation Science Summary Report 2023-001. Saraance Lake, NY. <https://www.nyserda.ny.gov/-/media/Project/Nyserda/Files/Publications/Research/Environmental/ACLC-Science-Summary-Rpt-2023-1-AdkLoons-Climate-Change.pdf>

### ***Land Based-Renewables***

Henry J. Williams, Khaled Hashad, Haomiao Wang, K. Max Zhang, The potential for agrivoltaics to enhance solar farm cooling, *Applied Energy*, Volume 332, 2023, 120478, ISSN 0306-2619, <https://doi.org/10.1016/j.apenergy.2022.120478>

### ***Offshore Wind***

Brunbauer, M., McClellan Press, K., Williams, K. A., Dresser, B. K., Gulka, J., & Lampman, G. (2023). Effective stakeholder engagement for offshore wind energy development: The State of New York's Fisheries and Environmental Technical Working Groups. *Marine and Coastal Fisheries*, 15(2). <https://doi.org/10.1002/mcf2.10236>