

2021 NYSWRI COMPILED STAFF ACTIVITY (PUBLIC)

Peer Reviewed Papers

Brian P. Buchanan, Suresh A. Sethi, Scott Cuppett, Megan Lung, George Jackman, Liam Zarri, Ethan Duvall, Jeremy Dietrich, Patrick Sullivan, Alon Dominitz, Josephine A. Archibald, Alexander Flecker, Brian G. Rahm, A machine learning approach to identify barriers in stream networks demonstrates high prevalence of unmapped riverine dams, *Journal of Environmental Management*, Volume 302, Part A, 2022, 113952, ISSN 0301-4797, <https://doi.org/10.1016/j.jenvman.2021.113952>.

Hychka, K. and C.G. Druschke. (2021) How Urban Ecological Restoration Gets Done: A Synthesis of Manager Perspectives. Special Issue: Urban Ecological Restoration. *SERNews* 35(4): 4-9.

John Aloysius Zinda, Lindy B. Williams, David L. Kay, Sarah M. Alexander, Flood risk perception and responses among urban residents in the northeastern United States, *International Journal of Disaster Risk Reduction*, Volume 64, 2021, 102528, ISSN 2212-4209, <https://doi.org/10.1016/j.ijdr.2021.102528>.

WRI Publications

Ashley Sissel and Julia Gonzales (Kristen Hychka) 2021. Stream and Riparian Restoration Targeting: An Analysis of the New York State Riparian Opportunities Assessment. NYS WRI Intern Program.

I.T. Blair (Kristen Hychka mentor) 2021. Barriers to FEMA Community Rating System Participation. NYS WRI Intern Program.

Singh, K., J. Knighton, M.T. Walter. 2021. Representing time variant water storage and mixing schemes in isotope tracer-aided hydrologic simulation. Department of Biological and Environmental Engineering, Cornell University.

Donohue, K., P.E. Jessica, M. Wilson, J. Brown. 2021. Eliminating the “barrier” to estuary education: Connecting students to their estuary by studying the effect of stream barrier and water quality on American eel populations. Manhattan College School of Engineering: Civil and Environmental Engineering Department.
https://wri.cals.cornell.edu/sites/wri.cals.cornell.edu/files/shared/2020_Donohue_Final.pdf

Cerra, Joshua F., L. Zemaitis, E. LoGiudice, T. Dehm, E. Fabis. 2021. Ossining’s Waterfront on the Rise. CaD Team, Cornell University, NY Hudson River Estuary Program.

Frantz, George. 2021. Scenic Resource Protection Guide for the Hudson River Valley. Department of City & Regional Planning, Cornell University, and New York State Department of Environmental Conservation, Hudson River Estuary Program. Ithaca, N.Y.

Endreny, Theodore A. 2021. Mapping needed and existing vegetative buffers to reduce nutrient loads. Department of Environmental Resources Engineering, SUNY ESF.

Richardson, David. 2020. The trophic state is dynamic: Understanding within and across year dynamics of nutrient controls on lake phytoplankton growth.
https://wri.cals.cornell.edu/sites/wri.cals.cornell.edu/files/shared/documents/2020_Richardson_Final.pdf

Houston, Benjamin H. July 24, 2020. Culvert Model Program 2020: Final Report. GroundPoint Engineering, PLLC. Posted October 12, 2020. https://wri.cals.cornell.edu/sites/wri.cals.cornell.edu/files/shared/2020_GroundPoint_Final.pdf

Hare, Matthew. 2019. Barriers to oyster recovery in Hudson River Estuary: Billions of larvae with no place to go. Posted October 6, 2020. https://wri.cals.cornell.edu/sites/wri.cals.cornell.edu/files/shared/2019_Hare_Final.pdf

Marcy, Alyssa. February 2020 Update on the Water Infrastructure Finance and Investment Act (WIFIA). Posted July 17, 2020. https://wri.cals.cornell.edu/sites/wri.cals.cornell.edu/files/shared/documents/WIFIA_Update_Memorandum_2020.pdf

Marcy, Alyssa. February 2020 Discussion Memorandum: The Indiana Finance Authority (IFA) Water Infrastructure Finance and Investment Act (WIFIA) Loan. Posted July 17, 2020.
https://wri.cals.cornell.edu/sites/wri.cals.cornell.edu/files/shared/documents/WIFIA_IFA_Case_Study.pdf

Allison M. Truhlar; Rebecca D. Marjerison; David F. Gold; Lisa Watkins; Josephine A. Archibald; Megan E. Lung; Andrew Meyer; and M. Todd Walter, 2020. Rapid Remote Assessment of Culvert Flooding Risk, *Journal of Sustainable Water in the Built Environment*, Vol. 6, Issue 2, May, 2020. <https://ascelibrary.org/doi/pdf/10.1061/JSWBAY.0000900>

Blakely-Armitage, R., D. Kay, L. Williams, J. Zinda, and S. Alexander. March 25, 2019. Establishing baseline and comparative frameworks of flood risk awareness, adaptation, & mitigation in Troy & Kingston (Phase III).

Sydenstricker, I. A (Partial) Timeline of Hudson Valley Racial History from New York City to the Capital Region, WRI web publication.

Trade & Extension Publications

Staples, C.; Zemaitis, L.; Rahm, B.G.; LoGuidice, E. "Climate justice and flood governance: Are New York's flood-governance networks equipped to succeed?" Cornell University Department of Global Development *Research & Policy Brief Series*. Issue 93, November, 2020

Hychka, K. "Climate Smart Communities" (<https://climatesmart.ny.gov/support/csc-scorecard/>)

Hychka, K. "Guiding Principles of Resilient + Climate Forward Infrastructure Funding" (<https://efc.syr.edu/wp-content/uploads/2021/09/Principles-of-Resilient-Infrastructure-2.pdf>)

Zemaitis, L. Changing landscapes, changing mindsets; Building community capacity toward action in the Climate-adaptive Design Studio | Routledge Handbook on Landscape Urban Research | 2021

Zemaitis, L. Climate Migration: Is New York State Ready? | Research & Policy Briefs, Cornell University Department of Global Development | 2021

Zemaitis, L. Lead with Listening: A Guidebook for Community Conversations on Climate Migration, <https://www.climigration.org/guidebook>

Zemaitis, L. Responding to Risk from Floods and COVID-19: Beyond Partisanship, Through Experience Research & Policy Briefs, Cornell University Department of Global Development | 2021

Student Theses & Dissertations

Jude Leape. Equity in the New York State Climate Smart Communities Program: Analysis of Program Participation and Recommendations for Advancing Equity and Justice, Department of Environment and Sustainability.

Bonnier-Cirone, Kalena. 2021. Surveying Private Landowners' Understanding of their Roadside Ditch and Right-of-Way in Relation to Stream Pollution. CALS Environment & Sustainability Honors Thesis

Conference Talks, Invited Talks, Panel Presentations

Rahm, B. Invited talk: "Identifying and addressing critical issues for NY's lakes" given at the 2021 NY Federation of Lake Associations Finger Lakes and Western NY Regional Conference, October 23, 2021. (45 minutes, 45 registered attendees)

Schull, V. Special Session--Histories and Futures of LGBTQ+ Professionals in Agronomy, Crop and Soil Science. 2021 ASA, CSSA, SSSA International Annual Meeting: A Creative Economy for Sustainable Development. Salt Lake City, UT. 11.08.21

Leape, J and K. Hychka. Social Equity in Climate Change Adaptation Programs: A Statistical Analysis of Participation in the NYS Climate Smart Communities Program. Session 4: Social Equity & Human Dimension of Water Management. Joint American Water Resources Association (AWRA) & National Capital Annual Water Symposium, virtual (4/15/-4/16/21).

Zemaitis, L. "New water-related actions for local governments in the NYS Climate Smart Communities certification program, Updates from New York State Agencies," Assessing Barriers and Opportunities for Clean Water Session, Tuesday, October 27, 1-3:30 PM, Annual Watershed Conference, Hudson River Watershed Alliance

Other Presentations

- Rahm, B. Invited presentation “Trivia on the Teal” to promote WRI’s Year of Water initiative as part of Discover Cayuga Lake Boat Tours & Cruises, September 1, 2021. (23 registered attendees)
- Rahm, B. Guest speaker for CAU Winter Session course *Space Cases: Virtual Forays into a Built Present and Future* (4 adult students). 2/5/21/
- Hychka, K. Co-hosted A Real Live Game of Frogger: Amphibian Breeding Migrations at Thomas Road by Dr. Leann Kanda. Town of Caroline Watershed Committee 2/23/21. (61 attendees; 2 hours)
- Hychka, K. Co-hosted Stream and Floodplain Restoration Site Visit: Six Mile Creek at Banks Road in Caroline, NY. Tompkins County Water Resources Council. 10/19/21. (21 attendees; 8 municipalities represented; 1.5 hours)
- Hychka, K. Co-host, Speaker, and Panel Moderator for Webinar: Developing Resilient Stormwater Systems with a Municipal Downspout Disconnect and Green Infrastructure Program. 11/15/21. (116 attendees; 1.5 hours) <https://efc.syr.edu/downspoutdisconnectqi/>. (Prepared a resources page of guidance, tools, and programs related to downspout disconnection).
- Roessler, B and Nate Nardi-Cyrus, N. Headwater Streams: Values and Threats. Webinar series. DEC Hudson River Estuary Program and Hudsonia Ltd. November 3, 2021.
- Bowser, C. “Fish Conservation Through Community Science”, presentation to the Region 2 EPA, Jan 6, 2021 (30 attendees).
- Bowser, C. “The Hudson River Eel Project”, presentation to University of Connecticut, March 9, 2021 (45 attendees)
- Bowser, C. “The Hudson: A Living River from the Mountains to the Sea”, series of four presentations to the Vassar College Lifetime Learning Institute, April-May, 2021 (50 attendees)
- Bowser, C. “Eel Project”, presentation to AFS SUNY Cobleskill chapter, April 15, 2021 (12 attendees)
- Bowser, C. “Getting a Grip on Slippery Data”, presentation to NOAA citizen-science community, August 20, 2021 (50 attendees)
- Cuppett, S. Presented at “What is a Watershed?” NYS DEC HREP Facebook Live event. # of attendees varied during live stream.
- Cuppett, S. Characterized the state of dams and their removals in NYS through a presentation to the DEC Dam Removal Working Group.
- Cuppett, S. Presented to Cornell Landscape & Architecture Studio class on the status of the Wallkill River and BMPs.
- Cuppett, S. Presented to Cornell CaD studio on the Water Resource Section in the City of Poughkeepsie NRI.
- Cuppett, S. Presented to the Ulster County Water Quality Coordinating Committee on past water quality monitoring and planned water quality for the future.
- Cuppett, S. Held a Pre-Application Webinar for Monitoring Program on Unassessed Stream Segments 2022-2023
- Cuppett, S. Delivered Estuary Program vision for a bacteria monitoring plan.
- Cuppett, S. Wallkill green infrastructure/restoration in Black Dirt area. Presentation to Cornell CaD studios.
- Cuppett, S. Webinar on unassessed streams monitoring and assessment.
- Czajkowski, K. Mohawk River Basin Program: inception, flood resilience projects, challenges faced, successes and working with stakeholders and partners. Professor Douglas Johnston’s SUNY ESF class. 38 students in attendance.
- Niekrewicz, T. High quality stream identification tool. Presentation to the Roundout Creek Watershed Alliance Summit.

Zemaitis, L. Climate adaptation and inclusive stakeholder engagement, SUNY Sustainability Professors, January 11, 29 attendees

Zemaitis, L. Climate adaptation and inclusive stakeholder engagement, SUNY Albany Atmospheric Sciences Research Center Friday Colloquy, April 2, 30 attendees

Zemaitis, L. Pre-application webinar for the 2021 CaD Studio, Hosted Webinar, April 12, 30 attendees

Zemaitis, L. Helping communities adapt to climate change, Vassar College Lifetime Learning, April 30, 45 attendees

Zemaitis, L. Green gentrification, Flood Resilience Network Lunch n Learn, May 6, 21 attendees

Zemaitis, L. Climate change in the Hudson Valley, CaD Studio, September 3, 14 attendees

Zemaitis, L. Supporting leaders in climate resilience, CaD Studio kick-off event in Poughkeepsie, September 10, 30 attendees

Zemaitis, L. Climate adaptive strategies, CaD Studio, September 20, 14 attendees

Zemaitis, L. Climate change in the Hudson Valley, CRB Workshop Esopus and Lloyd, October 7, 28 attendees

Zemaitis, L. Climate change in the Hudson Valley, CRB Workshop Hyde Park and Poughkeepsie, October 13, 18 attendees

Zemaitis, L. Green gentrification, Hudson Valley Conservation Partners, October 15, 33 attendees

Zemaitis, L. Stakeholder design review, CaD Studio Poughkeepsie, October 20, 33 attendees

Zemaitis, L. Building resilience and adapting to climate change in the HV, SENY Stormwater Conference, December 5, 78 attendees

Zemaitis, L. Final Open House, CaD Studio Poughkeepsie, December 13, 30 attendees

Environmental Education Activity

Bowser, C and Niemisto, M. Direct education programs reached 10,294 students, teachers, and members of the public. This includes 2,874 students and 407 teachers who participated in-person at the “Day in the Life of the Hudson and Harbor” on October 14th.

Bowser, C and Niemisto, M. Teacher, educator, and professional training offerings, serving 332 educators and professionals through 620 contact hours. This also includes a new webinar series called “Women in Science” that we implemented this year

Bowser, C and Niemisto, M. Fifty-two Facebook Live programs with the DEC garnered over 203,000 views. Seven new DEC YouTube videos were created and translated into Spanish, earning 3,653 views.

Bowser, C and Niemisto, M. A comprehensive inline curriculum program of 24 units, covering K-12 grades and seven topic areas, have been created, posted, and are awaiting final DEC approval for online publication.

Bowser, C and Niemisto, M. Improved exhibits to the Norrie Point Environmental Center include new aquarium displays, upgraded audio-visual equipment, large format mapping displays, and updated microplastic equipment.

Bowser, C and Niemisto, M. The Institute Discovering Environmental Scientists (TIDES) is a summer field research and laboratory science experience with DEC’s Hudson River National Estuarine Research Reserve, the Hudson River Estuary Program, the Cary Institute of Ecosystem Studies, and the Margaret A. Davidson Graduate Fellowship. Fifteen high school and college students from communities across the Hudson Valley recently completed an innovative two-week research program together with education staff and scientists at the Norrie Point Environmental Center

Bowser, C and Niemisto, M. The Hudson River Eel Project celebrated the 14th year of glass eel monitoring in 2021. Students, volunteers, and staff counted a total of 80,764 eels at 12 streams from Staten Island to Troy, contributing important data on this species in decline. Over 400 volunteers participated in 2021.

Zemaitis, L. [History of the Hudson: Hope for the Future \(Part 1\) \(with Spanish captions\)](#). Educational Video.

Zemaitis, L. [Future of the Hudson: Develop a Climate Resilience Vision \(Part 2\) \(with Spanish captions\)](#). Educational Video.

Zemaitis, L. [Barrier Removal Climate Smart Communities adaptation movie](#). Educational Video.

Resource Management Activity

Trees for Tribs provided 4,800 native plants for 28 streamside sites and engaging 623 volunteers to plant 1.6 miles of stream and 10.6 acres.

The Mohawk Trees for Tribs Program provided 180 mature trees for three riparian restoration projects: Steel Creek Restoration Plan, Fulmer Creek Floodplain Restoration and Mohican Wetland Park.

The Mohawk-Hudson River Water Chestnut Working Group organized a water chestnut pull at Aqueduct Park in Niskayuna; in total 10 staff and volunteers harvested water chestnuts, enabling rowing clubs and public users of the boat launch to have clear access to the river.

Testimony and Public Comment

Kristen Hychka, James Knighton, Ingrid Vianna Sydenstricker, & Brian Gramlich Rahm, Written Testimony of the New York State Water Resources Institute before the New York City Council Committee on Housing and Buildings and the New York City Council Committee on Resiliency and Waterfronts Regarding Intro 566 and Intro 962, February 8, 2021.

Invitation-only review and discussion of Draft Adaptation and Resilience Recommendations proposed for inclusion in the NYS Climate Action Council's Scoping Plan. Prepared by the Adaptation and Resilience Group of the Council's Land Use and Local Government Advisory Panel. 4/6/21.

Awards

2021 American Society of Landscape Architects-NY Merit Award for Climate-adaptive Design Phase II, Kingston NY. Awarded to Supermass Studio, who worked in partnership with the Estuary Program and City of Kingston to advance a design concept from the Cornell Climate-adaptive Design studio to protect their public beach from sea-level rise while adding recreational amenities and a wetland cove.

Service/Advising

Brian Rahm

- Cornell CALS representative to NYS Ag & Markets Soil and Water Conservation Committee
- Member of Advisory Panel for the Cornell Local Roads Program (Local Technical Assistance Program)
- Faculty Co-Advisor for the Cornell University New York Water Environment Association Student Chapter
- Continued service on the Environment seat for the Tompkins County Water Resources Council
- Began serving on the NAACC NY Team and participating in monthly calls
- Committee member to re-envision the Cornell Nutrient Analysis Laboratory
- Member of Healthy and Productive Ecosystems Workgroup of the Ohio River Restoration Strategy effort, coordinated by the National Wildlife Foundation
- Member of NIWR DEI Sub-Committee

Kristen Hychka

- Member of the NY Climate Smart Communities Equity Working Group
- Member of NY Floodplain and Stormwater Managers Association Outreach and Education Committee
- Member of Tompkins County Water Resources Council
 - Chair Municipal Training Subcommittee
 - Member of Soil Health Subcommittee
 - Executive Committee member

- Member of Caroline Watershed Committee

Seth Lutter

- Ex-Officio Member: Cayuga Lake Intermunicipal Organization

Libby Zemaitis

- NYS Climate Leadership and Community Protection Act
 - Adaptation and Resilience subgroup, Staff Working Group Member
 - Land Use and Local Government Advisory Panel, Staff Working Group Member
- NYS Climate Smart Communities Certification Program
 - Resilience Working Group, Chair
 - Standards Committee, Member
 - Equity Working Group, Member
- NYS Interagency Climate Adaptation and Resilience Working Group, Member
- NYS Adaptation Practitioners Network, Planning Team Member
- USACE NY & NJ Harbor and Tributaries Feasibility Study (HATS), Project Delivery Team, Non-Federal Partner
- Rebranding Managed Retreat, Climigration Network, Working Group Member

Trainings/ Technical Assistance

Hychka, K. Adaptive Approaches to Diversifying Extension Seminar, Cornell Cooperative Extension, 1 hr. 1/22/21.

Hychka, K. Community Rating System Training: Village of Owego and Mohawk River Basin.

Hychka, K. SSURGO Soils Data Training: Schuyler County CCE.

Hychka, K. Climate Smart Communities: Scorecard for Town of Caroline.

Czajkowski, C. Stream Intervention Training technical assistance workshop. Oneida County SWCD. 123 municipal representatives participated. (June 2021).

Zemaitis, L. Supported TNC and HRWA in delivering two Community Resilience Building workshops to four municipalities (Esopus, Lloyd, Hyde Park, and Poughkeepsie)

Zemaitis, L. Supported 5 Cornell Cooperative Extensions covering 6 counties to complete 21 CSC adaptation actions (PE7) and 12 certification assessments/submission with 21 municipalities

Cuppett, S. Continued working with Moodna Creek Watershed councils "Moodna Explorer Program" and map creation of SPDES permittees in their watershed.

Cuppett, S. Assisting Rondout Creek Watershed Alliance with Native Stream Name Project.

Cuppett, S. Provided technical assistance to Cornwall CAC regarding stormwater runoff.

Cuppett, S. Assisted Cornwall CAC with Rings Pond Inquiry by providing maps and resources.

Cuppett, S. Provided Hasting on Hudson with guidance and resources related to dam removal.

Media

Rahm, B. Cornell Media Relations Office Tip Sheet contribution, "Ida highlights urban flash flood risks, disparities," 9.2.21

Rahm, B. Cornell Media Relations Office Tip Sheet contribution, "Uncertainty for farmers after water pollution rule scrapped," 8.31.21

Lewis, Danny. October 22, 2021. Tap Water Taste Funny in NYC? There's Nothing to Fear, But Blame Aging Infrastructure. <https://gothamist.com/news/tap-water-taste-funny-in-nyc-theres-nothing-to-fear-but-blame-aging-infrastructure>

City of Poughkeepsie. October 26, 2021. City of Poughkeepsie Attains Bronze Level in State's Climate Smart Communities Program. <https://www.cityofpoughkeepsie.com/CivicAlerts.aspx?AID=108>