The Built Environment

Climate change and severe weather impacts, directly affects the places where we live, work, learn, and play. This action-oriented track will build the capacity of practitioners who design, manage, preserve, and protect the built environment. This track encompasses buildings, transportation systems, energy systems, communication networks, parks, and other forms of built infrastructure in a community. The track will embed climate mitigation and adaptation into normal planning and design activities in order to identify who and what is most vulnerable and how to mitigate impacts associated with a changing climate.

Resilient Buildings: Combining Climate Change Mitigation and Adaptation

During the "Snowvember" snowstorm in 2014, more than 70 inches of snow fell in Western New York, causing numerous roofs to collapse. Superstorm Sandy damaged over 600,000 buildings in 2012. These extreme events suggest that building design across the Northeast need to become more resilient to address extreme weather caused by climate change. This session will present climate-related hazards, basic design strategies, and resources available to support designers and building owners. It will review why it makes sense to be designing buildings that not only help to mitigate climate change but also adapt to the changing conditions those buildings will experience. Participants will see a wide range of case studies showing how to achieve those complementary priorities through smart building design.

Presenters:

Alex Wilson, President, Resilient Design Institute
Nicholas B. Rajkovich, PhD, Assistant Professor of Architecture, State University of New York at Buffalo

Alex Wilson is president of the Resilient Design Institute, a nonprofit organization working to advance the adoption of resilient design into buildings and communities. He is also founder (in 1985) of the Brattleboro, Vermont company BuildingGreen, which has long been a leader in green building consulting and information delivery. Alex is a widely published writer on green building, energy, and the environment, and he is the author or coauthor of several books, including Your Green Home (New Society Publishing, 2006), The Consumer Guide to Home Energy Savings (American Council for an Energy Efficient Economy, 1990, 10th edition, 2013), and Green Development: Integrating Ecology and Real Estate (John Wiley, 1998). Alex served on the national board of the U.S. Green Building Council from 2000 – 2005, and in 2008 he received the organization's Leadership Award for Education; in 2010 he received the second annual Hanley Award for Vision and Leadership in Sustainability. Alex and his wife live in Dummerston, Vermont in a 200-year-old, net-zero-energy farmhouse that demonstrates sustainability and resilience, and they are working to bring back into production long-neglected farmland on the property.

Nicholas B. Rajkovich, PhD, AIA is an Assistant Professor at the University at Buffalo in the Department of Architecture. His research investigates the intersection of energy efficiency, renewable energy, and adaptation to climate change in buildings and communities. Prior to earning a PhD in Urban and Regional Planning from the University of Michigan, he was a Senior Program Engineer at the Pacific Gas & Electric (PG&E) Company Customer Energy Efficiency Department. At PG&E, he was responsible for coordinating a new Zero Net Energy Pilot Program. He has a Master of Architecture from the University of Oregon and a Bachelor of Architecture from Cornell University.

Living With Water: Resilient Flood Management

Climate change is expected to produce heavier rainfalls and more intense storms, and resilient communities will need to live with more downpours. This session examines water resources assessment, planning, and adaptation to better prepare for the next emergency, and to sustainably manage flooding and sea level rise. This session covers the range of urban coastal climate adaptation preparation broadly (Talk 1 with Kirshen), to coastal adaptation with living shorelines (Talk 2 Ballestero and Burdick), and municipal resiliency for inland flooding as it relates to green infrastructure (Talk 3, Roseen). Participants will leave this session with an appreciation of maintaining the landscape to mitigate projected impacts along with enhanced knowledge on the application of low-impact development, site design, and other smart growth practices.

Moderator:
Robert Roseen, Waterstone Engineering

Speakers/Panelists:
Paul Kirshen, PhD, (Paul.Kirshen@umb.edu) Academic Director, Sustainable Solutions Lab, Professor of Climate Adaptation, School for the Environment, UMASS Boston.
Thomas P. Ballestero, PhD, P.E., (tom.ballestero@unh.edu)Associate Professor of Civil Engineering at UNH, UNH Stormwater Center Director and Principal Investigator
David Burdick, PHD, (david.burdick@unh.edu) Interim Director of the Jackson Estuarine Laboratory, Research Associate Professor of Coastal Ecology and Restoration, University of New Hampshire
Robert Roseen, PHD., D.WRE, PE, (rroseen@waterstone-eng.com) Principal, Waterstone Engineering

Dr. Robert Roseen provides many years of experience in water resources investigations and most recently, led a project team in the development of an Integrated Plan for nutrient management for stormwater and wastewater. This plan has received provisional approval by EPA and would be one of the first in the nation. Rob is a recognized industry leader in green infrastructure and watershed management, and the recipient of 2010 and 2016 Environmental Merit Awards by the US Environmental Protection Agency Region 1. He consults nationally and locally on stormwater management and planning and directed the University of New Hampshire Stormwater Center for 10 years. Rob has led numerous studies examining land use and climate change impacts upon municipal flooding and the role of green infrastructure as a municipal

adaptation measure for damage and cost avoidance. He has participated as the lead or project team member in many significant and award winning green infrastructure projects.

Professor Paul Kirshen has 30 years of experience in complex, interdisciplinary research related to water resources management, and climate variability and change. Dr. Kirshen is interested in the integrated vulnerabilities of built, natural, social, and economic systems to climate change and SLR and the development of flexible, adaptive adaptation strategies to these stresses that are tied to the climate and SLR changes and other non-stationary conditions. He uses a variety of qualitative and quantitative methods but is particularly interested in analytical approaches to decision-making under deep uncertainty. He currently has research efforts in metro Boston, NH, coastal MA, and other areas. A major project is on environmental justice and climate change adaptation in East Boston.

Dr. Tom Ballestero is a hydrologist and water resources engineer. He is an Associate Professor in the Civil Engineering Department at the University of New Hampshire. His experience with surface water runoff extends back to 1976 when he co-taught short courses on modeling techniques. His current research projects include the Stormwater Center, living shorelines, stream restoration (in close collaboration with the US Fish & Wildlife Service), and bedrock hydrogeology. Dr. Ballestero teaches advanced courses on: stormwater systems, stream restoration, sediment transport, open channel flow, engineering hydrology, and hydrologic monitoring. Dr. Ballestero is the former Director of the New Hampshire Water resources Research Center, and is presently a commissioner for the New England Interstate Water Pollution Control Commission.

Dr. David Burdick's research expertise is in ecology and management of coastal wetlands and design, implementation and assessment of habitat restoration. His research emphasis is in tidal wetlands and the invaluable roles they play in supporting marine ecosystems. Dr. Burdick studies these habitats and the plants that characterize them, and the direct and indirect impacts from a growing coastal population. He is interested in the functions of tidal habitats, how plants respond to stresses (flooding, salinity, pollution, disease, invasive species, and human alterations), and how plants interact with physical processes to maintain these habitats.

When the Ocean Comes In: Adaptation to Sea-Level Rise

The IPCC has predicted that sea level would rise between 2.6 to 3.1 feet by 2100 due to climate change. This presents enormous challenges for coastal communities and low-lying countries. This session features two experts on community development working to help communities adapt to sea-level rise. Participants will learn how natural adaptation methods can reduce coastline erosion, mitigate flooding, and enhance development. Social and political challenges to implementation will be discussed as well as technical ideas.

Presenters:

Jennifer Jurado, Chief Resilience Officer and Division Director, Broward County, Florida

Bruce Carlisle, Director, Massachusetts Office of Coastal Zone Management and Hosted Programs

Dr. Jennifer Jurado oversees Broward County's climate resilience, water resource policy and planning, shoreline protection, marine resource conservation, and environmental monitoring programs. Since joining the County in 2002, Jennifer has been a key figure in the advancement of multi-jurisdictional initiatives, with an emphasis on water management, climate adaptation, and the integration of sea level rise in policy and comprehensive planning. Jennifer was engaged in the early formation and advancement of the Southeast Florida Regional Climate Change Compact and continues to serve on the Staff Steering Committee. Dr. Jurado earned her Ph.D. in Marine Biology and Fisheries from the University of Miami.

Bruce K. Carlisle is the Director of the Massachusetts Office of Coastal Zone Management (CZM), providing oversight and administration for the agency. Mr. Carlisle directs policy development, planning efforts, and technical approaches for CZM program areas including ocean planning, offshore renewable energy, climate change adaptation and coastal resilience, shoreline and floodplain management, habitat protection and restoration, port and harbor planning, water quality, seafloor and tidal habitat mapping, and GIS/data management. Bruce also supervises CZM's regulatory review of coastal and ocean projects, ranging from municipal waterfront development and dredging to offshore wind turbines and LNG facilities. He formerly served as Assistant Director for CZM, as well as the manager for the Commonwealth's Wetlands Restoration Program, where he led collaborative efforts to restore former and degraded wetlands. Prior to that, Bruce served as a project manager and principal investigator for coastal wetland assessment projects and as a specialist in water resources policy, monitoring, and planning. He holds a Masters in Environmental Policy degree from Tufts University.

Community Energy: Planning & Financing Resilient Energy Systems

In a world of increasing climate instability, access to a stable energy source is an essential component of resilience. Community energy based on microgrids, renewable energy, and local production reduce greenhouse gas emissions that cause climate change, and help people have access to cleaner, more reliable energy. This session will cover how individuals and communities can plan and finance resilient energy systems, including asset and on-bill financing, microfinance, leasing arrangements, and finance of up-front costs by local governments using property tax surcharges for repayment. Participants will learn about exciting developments in renewable energy and how communities can become resilient in accessing stable energy sources.

Presenters:

Clay Mitchell, Esq PhD

Todd Olinsky-Paul, Project Director, Clean Energy Group (CEG) and Clean Energy States Alliance (CESA).

Dr. Clay Mitchell is a graduate of Vermont Law School where he earned his JD and MS in Environmental Law. His doctorate in Natural Resources and Environmental Studies is from the University of New Hampshire where he currently is on the faculty teaching Sustainable Energy and Environmental Policy. Prior to UNH, Clay worked for 20 years with local governments in the land use planning and energy fields. He has served as a land use planner and attorney throughout the state. He is a founding partner of Revolution Energy LLC, where he developed several energy and efficiency projects for schools, towns and private clients in NH and Massachusetts. He serves on several non-profit boards supporting the arts and the environment.

Todd Olinsky-Paul is project director for Clean Energy Group (CEG) and Clean Energy States Alliance (CESA). He directs CESA's Energy Storage and Technology Advancement Partnership (ESTAP), a federal-state funding and information sharing project that aims to accelerate the deployment of electrical energy storage technologies in the United States. Todd also works on CEG's Resilient Power Project, which focuses on solar+storage for critical infrastructure energy resiliency. His recent work has focused on battery storage technologies, policy, and economics, and he has authored numerous reports for state and federal agencies. He has also participated in numerous energy storage deployment projects, at the utility, commercial and residential scales. He holds a Master of Science in Environmental Policy from Bard College and a Bachelor of Arts from Brown University.

Planning & Process

This track is designed to build the capacity of participants to begin the planning process for climate adaptation and resilience. The sessions will explore key leverage points and techniques as well as existing community planning processes for developing and incorporating adaptation goals and recommendations. Participants will learn how to collaborate with existing stakeholders and link to regional, statewide and national planning efforts.

Incorporating Climate Adaptation & Resilience in Day to Day Planning

Local governments are increasingly concerned about more frequent storms, inundation, and how climate change impacts physical infrastructure, recreation, land use policy, public safety, food security, and emergency management. This session focuses on some of the cutting-edge plans and processes municipalities are using to guide local decision making through land use mechanisms, zoning, comprehensive planning, permitting, etc.

Presenters:
Kristin Baja, USDN Climate Resilience Officer
Kevin Geiger, Senior Planner, Two Rivers-Ottauquechee Regional Commission

Kristin Baja is USDN's first Climate Resilience Officer, responsible for helping cities identify strategic ways to advance climate resilience planning and implementation and building their capacity to take action. The majority of her time is spent supporting cities and facilitating deeper relationships between local governments and other stakeholders in the Mid-Atlantic region. Prior to USDN, she served as the Climate and Resilience Planner with the City of Baltimore's Office of Sustainability where she led the city's climate adaptation and equity work. She holds a Masters of Urban Planning and a Masters of Science from the University of Michigan. In 2016, she was recognized by the Obama Administration as a Champion of Change for her work on climate and equity.

Kevin Geiger has over 20 years of experience in assisting Vermont towns. He recently wrote our successful application to EPA for $400,000 in brownfields assessment funds, putting our dormant brownfields back into action. Kevin is also responsible for Two Rivers-Ottauquechee Regional Commission's local and regional emergency management planning efforts and water quality policy; as well as assisting towns with regulating floodplain development, zoning, and capital budgeting. Off hours in March, Kevin can be found pruning apple trees, as well as moderating the Pomfret Town Meeting.

Communities, Climate Justice, & Equitable Adaptation: Collaborating for Resilience

Climate change disproportionately affects low-income and communities of color, those with the least resources to prepare, sustain and recover from extreme events. In this interactive session, participants will explore strategies for ensuring that their adaptation work has equitable impacts in under-resourced communities. The session will include brief presentations about equitable adaptation strategies and tools, as well as on-the ground case studies from a community-based perspective. The second half of the session will involve breakout groups that will develop equity strategies for real world adaptation challenges. Participants should leave the session with tools, strategies and insights that will help them collaborate with communities to advance equitable outcomes in their adaptation work.

Presenters:

Sarika Tandon, Consultant and Equity Strategist
Aurash Khawarzad, Director of Policy & Strategy, Race Forward

Sarika Tandon is an Equity Consultant who works to help environmental organizations develop and implement strategies that increase their equity impacts in communities of color and communities facing poverty. Most recently she has worked with The Nature Conservancy, where she was a contributing author and Senior Editor of The Field Guide to Conservation in Cities. Sarika is a former Program Director at Center for Whole Communities, where she led the development of Whole Measures for Urban Conservation, an equity-oriented planning, evaluation and community engagement framework for The Nature Conservancy's North America Cities Network. In 2013 Sarika completed her Master's degree in Advocacy for Social Justice and Sustainability from Antioch University New England's Department of

Environmental Studies. For her Master's Project she developed a practitioner tool to help integrate social justice parameters into climate adaptation planning processes.

Aurash Khawarzad is the Director of Policy & Strategy at the new Race Forward. In his position he conducts research and develops community-based plans that work to eradicate the causes and systems of race and class discrimination in America.

Since 2009, Aurash has worked nationally and in New York City as an urban planner. Most recently, he worked as Policy Coordinator at WE ACT for Environmental Justice, where he led the development of the Upper Manhattan Climate Action Plan—a climate action project that included participation from hundreds of stakeholders and has led to the development of social enterprises that are helping to lead changes in infrastructure, social services, local education, emergency response, and more. You can see the plan here. He also teaches urban planning part time at The New School and City University of New York.

Collaborating on Climate: How local governments and non-profits can partner with and benefit from universities

From faculty to students to centers and institutes, universities have a range of resources that can support local governments and non-profits working to address climate change. This session will present practical guidance from municipal and university perspectives about developing strong collaborations that leverage university resources to benefit local efforts.

Presenters:

Duncan Watson, MS, Assistant Director of Public Works, City of Keene, NH
James Gruber, **PE, PhD,** Antioch University New England
Jason Rhoades, PhD, Antioch University New England

Duncan Watson currently serves as the Assistant Director of Public Works for the City of Keene, NH. He has been with the Department of Public Works since 1992. Duncan runs the Solid Waste Division which features the largest municipally operated materials recovery facility in the State of New Hampshire processing upwards of 7,000 tons per year (operated off the grid using a landfill gas-to-energy system from 1994-2017 and starting in 2018 a 1000% post-consumer vegetable oil biofuel generator), a 40,000 ton per year Transfer Station, an award winning Household Hazardous Waste Collection Facility, and an organics composting operation. During his tenure in the Solid Waste Division, the City of Keene was named the best Municipal Recycling Facility in the State, and Duncan was awarded "Recycler of the Year" by the Northeast Resource Recovery Association. Duncan also oversees the operation of the City's Highway Division which has over 120 miles of roadways, 52 miles of sidewalks and more than 5,000 drainage basins, as well as oversight responsibility for the City's 150+ vehicle Fleet Services Division. Duncan serves on the New Hampshire Solid Waste Management Council, the Town of Walpole Conservation Commission, Board of Trustees of the Northeast Resource Recovery Association where he currently serves as President, and is a founding member of the Solid Waste Environmental Excellence Protocol standard (SWEEP). Duncan has a Bachelor's

degree in Business from the University of New Hampshire and a Masters of Environmental Science degree from Antioch New England University.

Jim Gruber is an internationally recognized academic expert and professional in the topics of Community-Based Natural Resource Management and methods for engaged and participatory research that leads to sustainable governance of ecosystems. He is a Professor and Director of the PhD Program in Environmental Studies and Co-Director of the Resource Management and Conservation MS Program at Antioch University New England. During the past 30 years, he has consulted to national and state governments, regional non-profit organizations, universities, and local governments in Eastern Europe, Mexico, South America, Africa, and the United States on environmental policy, community-based natural resource management, social capital building, facilitating systemic change, engaged scholarship, climate adaptation and resilience, energy conservation, and solar technology. He has published numerous articles on his research. Jim holds a PhD from the University of Zagreb in Environmental Resource Management, a MPA from Harvard Kennedy School of Government, and a MS from Massachusetts Institute of Technology. He is also a professional Civil Engineer (PE).

As a researcher for the Center, **Jason Rhoades'** work focuses on providing meaningful opportunities for marginalized groups to engage in participatory planning and decision-making. In particular, he facilitates and studies collaborative climate change adaptation planning projects with vulnerable populations. Most recently he completed a participatory adaptation planning project with the senior citizen community of Bridgeport, Connecticut. In addition to his work with the Center, Jason serves on the faculty in the Environmental Studies and Management Departments and directs the International Service Program at Antioch University New England. Jason earned his PhD in Environmental Studies at AUNE in 2016. Prior to joining AUNE, he held a variety of positions in the environmental field including serving as a Peace Corps volunteer in the Republic of Armenia.

How do we Measure Success?

Climate change is having far-reaching effects on natural resources and human communities, and decision makers often struggle with how to identify, prioritize, and evaluate the effectiveness of climate adaptation actions. In order to determine what is and is not working, monitoring and evaluation is a much needed - although less developed - adaptation discipline. This session will explore ways to measure success in adaptation by incorporating monitoring and evaluation into the adaptation planning process to improve long-term success.

Presenter:

Rachel Gregg, EcoAdapt

Rachel Gregg created and manages the **State of Adaptation Program** and serves as the Content Editor for the **Climate Adaptation Knowledge Exchange (CAKE)**. In addition, she provides support to the **Awareness to Action** and **Adaptation Consultation** programs. She brings expertise in survey design and analysis, identifying and evaluating climate adaptation actions,

developing guidance to support decision-making and management in a changing climate, and communicating climate impacts and response strategies to diverse audiences. She serves as an adaptation expert in different capacities, including acting as a reviewer for the Intergovernmental Panel on Climate Change Fifth Assessment Report, contributing author to the National Climate Assessment, and member of the U.S. Urban Adaptation Assessment Advisory Committee and the Central Puget Sound Regional Open Space Ecosystem Services Committee.

She earned her undergraduate degree from Smith College in Government and Marine Science, and a Master's in interdisciplinary marine science and policy from the University of Washington. Rachel lives in Seattle and enjoys traveling, painting, camping, the All Blacks, and Liverpool FC.

Communication, Leadership, & Engagement Track

Effective climate adaptation will require not only implementation of new plans and techniques, but it will also require effective communication with the public and engagement from citizens. Participants will learn about effective engagement strategies based on recent social science and communication techniques. The track will further explore how to strategically build the political will and public support for local climate resilience in your community. In addition, best practices and innovative examples of community engagement and communication will be shared and discussed for lessons learned.

Civic Engagement in the New Political Environment

There is broad scientific consensus that climate change is occurring, is anthropogenic, and there is support for policy action – from the local to international level. This public support, however, has not translated into political action, resulting in limited implementation of the solutions to help create resilient communities and ecosystems. The US Third National Climate Assessment lists implementation as the number one significant gap in successful climate adaptation. Why are we losing the battle on motivating the American public into action? What does engagement even really mean? Communications experts have known for a long time the effectiveness of content marketing and branding to get people to buy something based on values and worldviews. This session will highlight dominant American values and how to message and engage community members based on common goals.

Presenters:
Christa Daniels, Program Manager, Center for Climate Preparedness and Community Resilience;
Justin Rolfe Redding, Social Science Fellow, Skoll Global Threats Fund

For over the past 15 years, **Christa Daniels** has worked with local governments to foster energy independence, reduce traffic congestion, curb local air pollution, strengthen local economies, and increase their resilience to the changing climate. Mrs. Daniels has facilitated and created innovative participatory stakeholder engagement strategies with towns and regions such as Marin and San Mateo County California, Pittsburgh PA, the Greater Portland Council of Governments, Monadnock region in New Hampshire, NY Department of Conservation, Maplewood NJ, and Bridgeport CT.

Christa earned her Ph.D. in Environmental Studies at Antioch University New England, a M.S. in Resource Management and Administration at Antioch University New England, and a B.A. in Political Science at Pace University. Christa's past experience includes working for the United Nations, NH Department of Environmental Services, Clean Air Cool Planet, and as a city planner for Keene, NH. She currently works for Antioch University New England (AUNE) as the Program Manager for the Climate Preparedness and Community Resilience Center and Climate Access as a research coordinator. Christa's research focuses on local climate resilience and civic engagement. Christa loves snow-boarding, running, and spending time with her 6 year old son.

Justin Rolfe Redding is the Social Science Fellow at the Skoll Global Threats Fund. He works closely with the Climate team and the Climate Advocacy Lab on a number of projects at the intersection of social science and climate advocacy, including fostering applied research collaborations between academics and advocates and translating social science results for non-experts. Justin also works with the academic community to synthesize research findings, advise on new research proposals, and promote the use of the new generation of survey and experiment platforms to drive data-driven best practices in climate advocacy. Previous to SGTF, he conducted research addressing a number of topics in the social science of climate change such as the psychology of hope, the role of political identity and values and the effects of news coverage, social identity framing, and past behavior on attitudes and further behavior. His work has been published in several peer-reviewed and invited venues, including Communication Research, Public Understanding of Science, Oxford Bibliographies, and the recent Routledge handbook of Environment and Communication. Justin has conducted climate and environmental communication work and research with the National Wildlife Federation, Rainforest Action Network, ForestEthics (now Stand), the U.S. Environmental Protection Agency, and U.S. National Park Service.

Justin is a doctoral candidate under Professor Ed Maibach at George Mason University's Center for Climate Change Communication (4C) and received a M.A. in Communication from the University of Washington and B.A. in Political Science from the University of Chicago. Justin has given to Doctors Without Borders because of their front-line efforts, including being the canary in the coal mine about the West African Ebola virus epidemic.

Creating and Tapping Existing Networks

How can municipal leaders and staff connect with one another across departments, jurisdictions and community stakeholders to implement climate solutions? This session will present ideas for tapping into existing political activist networks to create local climate change policy. It will showcase best practices in co-creating a unifying communication campaign for all networks to institutionalize.

Presenters:

Kristin Baja, USDN Climate Resilience Officer
Deb Markowitz, Secretary, Vermont Agency of Natural Resources

Kristin Baja is USDN's first Climate Resilience Officer, responsible for helping cities identify strategic ways to advance climate resilience planning and implementation and building their capacity to take action. The majority of her time is spent supporting cities and facilitating deeper relationships between local governments and other stakeholders in the Mid-Atlantic region. Prior to USDN, she served as the Climate and Resilience Planner with the City of Baltimore's Office of Sustainability where she led the city's climate adaptation and equity work. She holds a Masters of Urban Planning and a Masters of Science from the University of Michigan. In 2016, she was recognized by the Obama Administration as a Champion of Change for her work on climate and equity.

Deb Markowitz is a Visiting Professor of Environmental Policy and Leadership at the University of Vermont's (UVM) Rubenstein School of Environment and Natural Resources. Deb joined UVM following a long career in public service. She was elected Vermont's Secretary of State six times, serving from 1999-2011. In 2011 Deb was appointed Secretary of the Vermont Agency of Natural Resources (ANR), where she served until 2017. As ANR Secretary, Deb shaped Vermont's environmental agenda, focusing on climate change, forest health and integrity, and cleaning up Lake Champlain. She speaks nationally and internationally on state leadership in the fight against climate change. She served on the board of the Regional Greenhouse Gas Initiative and represented Vermont on the White House Task Force on Climate Preparedness and Resilience, and at the United Nation's Summits on Climate Change in Paris and Marrakech. Deb currently serves on the boards of advisors for the Georgetown Climate Center, Antioch's Center for Climate Preparedness and Community Resilience, and UVM's Rubenstein School. She founded Vermont Parks Forever, the foundation for Vermont's state parks and the Women's Leadership Initiative.

Deb is a graduate of the University of Vermont (B.A.,1983), and the Georgetown University Law Center (J.D. *magna cum laude,* 1987). She has been recognized for her leadership by being awarded an Aspen Institute Rodel Fellowship, and the Kennedy School of Governments' Cahn Fellowship for Public Leadership.

Innovative Engagement Strategies

(Mini-Lightning Session)

Struggling to engage stakeholders in outreach events? This session will cover innovative, emergent practices to engage the community. Through best practices and lesson learned, participants will learn the basics of developing an effective climate engagement strategy for their target audiences. This session will cover:

- Tips on developing values based framing;
- Examples of community engagement approaches
- Common communication challenges and how to overcome these challenges based on translated and applied social science research.

Presenter:
Cara Pike, Climate Access – Facilitator and Moderator (overall)

Cara Pike developed the idea for the network in her role as founder and director of The Resource Innovation Group's Social Capital Project. She was formerly the vice president of communications for the leading nonprofit environmental law firm Earthjustice, where she created and ran a full-service internal communications agency for the organization's eight offices, policy arm and international program. Cara was a founding board member of the Global Footprint Network, is an advisory board member of David Suzuki's Stonehouse Standing Circle and serves on the boards of Resource Media and the Hollyhock Educational Foundation. She has a Masters of Science in Environmental Communications from California State University-Fullerton and a Bachelor of Arts in Film and Communications and Environmental Science from McGill University.

Panelists for Lightning Session:
Jeremy Hoffman, Climate & Earth Scientist, Science Museum of Virginia
Aurash Khawarzad, Director of Policy & Strategy, Race Forward
Mia Mansfield, Climate Ready Boston Program Manager, City of Boston

Jeremy Hoffman, PhD, is the climate and Earth scientist at the Science Museum of Virginia, where he focuses on public-facing climate science communication, interactive exhibit and media development, and citizen-led science initiatives relevant to urban climate change phenomena. Jeremy earned his PhD at Oregon State University as a National Science Foundation Graduate Research Fellow and a Science Communication Fellow at the Oregon Museum of Science and Industry.

Aurash Khawarzad is the Director of Policy & Strategy at the new Race Forward. In his position he conducts research and develops community-based plans that work to eradicate the causes and systems of race and class discrimination in America.

Since 2009, Aurash has worked nationally and in New York City as an urban planner. Most recently, he worked as Policy Coordinator at WE ACT for Environmental Justice, where he led the development of the Upper Manhattan Climate Action Plan—a climate action project that included participation from hundreds of stakeholders and has led to the development of social enterprises that are helping to lead changes in infrastructure, social services, local education, emergency response, and more. You can see the plan here. He also teaches urban planning part time at The New School and City University of New York.

Mia Mansfield manages the Climate Ready Boston initiative for the City of Boston Office of Environment, Energy and Open Space. In this role, she is responsible for directing the City's climate adaptation efforts, including implementation of the Climate Ready Boston plan, the City's participation in the Metro Boston Preparedness Taskforce, and collaborating with ongoing planning processes like Imagine Boston 2030, Go Boston 2030 and the Resilience Strategy. She has a Master's in City Planning from

MIT's Department of Urban Studies and Planning and a BA in Environmental Studies from Brandeis University.

Encouraging Residents to be Spokespeople for Adaptation

How do you encourage residents and people who do not work on climate adaptation to be advocates in your own community? This session will explore models cities are using to get residents more involved in defining climate adaptation priorities and strategies – and in building residential capacity to take adaptation actions in their own homes.

Presenters:
Beth Gibbons, American Society of Adaptation Professionals
Mia Mansfield, Climate Ready Boston Program Manager, City of Boston

Elizabeth "Beth" Gibbons is a Senior Program Officer for ISC's U.S. Program, where she serves as the Managing Director of the American Society of Adaptation Professionals (ASAP). In this role, she is responsible for strengthening ASAP as an emerging nonprofit organization, managing relationships with its members, board and donors, and bringing adaptation best practices into the broader urban conversation. She also supports ISC's other urban resilience initiatives.

Prior to ISC, Beth was Director of the University of Michigan Climate Center and managed NOAA's Great Lakes Regional Integrated Sciences and Assessments Center. She also worked for the Graham Sustainability Institute as a research specialist, helping develop and implement the Great Lakes Adaptation Assessment for Cities. Previously, Beth worked for the International Forestry and Research Institute and the General Federation of Women's Clubs supporting organization operations and communications. She served in the Peace Corps in Agodopke, Togo. Beth earned her undergraduate degree in Comparative Politics from the Catholic University of America and holds a Master of Urban Planning from the University of Michigan.

Mia Mansfield manages the Climate Ready Boston initiative for the City of Boston Office of Environment, Energy and Open Space. In this role, she is responsible for directing the City's climate adaptation efforts, including implementation of the Climate Ready Boston plan, the City's participation in the Metro Boston Preparedness Taskforce, and collaborating with ongoing planning processes like Imagine Boston 2030, Go Boston 2030 and the Resilience Strategy. She has a Master's in City Planning from MIT's Department of Urban Studies and Planning and a BA in Environmental Studies from Brandeis University

Public Health

This track will address the direct links between climate change and impacts on the public health of a community and our ecosystems. We will discuss projected changes to human health, economy, and quality of life, and what are the best approaches to prepare, mitigate, adapt, and build resilience to changes in public health. This track is designed for public health officials, disaster preparedness personnel, local leaders, ecosystem managers and others to collaboratively learn best practices in preparedness for anticipated impacts.

Stay Cool on a Hot Planet: Dealing with Extreme Heat

New England is likely to experience significantly greater warming over the next decade, and beyond, than the rest of the planet, according to new findings by climate scientists at the University of Massachusetts Amherst. The region's temperatures are projected to rise by an average of 3.6 degrees Fahrenheit above pre-industrial levels by 2025. How can municipalities effectively build resilience to projected heat increases? A recent study conducted by the New Hampshire Environmental Public Health Tracking Program evaluated the impacts of heat on health in New England, and demonstrated that both moderate (e.g., 90-95^{o}F) and extreme (e.g., >105^{o}F) heat are associated with an increase in hospitalizations and deaths. The results were shared with the National Weather Service who then decided to lower the threshold for Excessive Heat Advisories in the Northeast for the 2017 summer heat season. Participants will learn about the study findings, the new NWS policy, and strategies to incorporate this information into planning and communication efforts.

Presenters:

Matthew Cahillane, Director, New Hampshire Department of Health and Human Services, Division of Public Health Services, Bureau of Public Health Protection.
Kathleen Bush, Program Manager, New Hampshire Department of Health and Human Services

Matt Cahillane is a Public Health Program Manager with the New Hampshire Department of Health and Human Services. His responsibilities include managing environmental issues related to climate change, weather hazards, related health impacts, and coordination of local health officers. He also administers a CDC cooperative agreement on Building Resilience to Climate Effects (BRACE). His educational background includes emergency medicine, a B.S. in preventive health studies from UMass Amherst, and a Masters of Public Health from UCLA. His current outreach projects include building community resilience against severe weather and climate change, and supporting local towns to solve environmental problems and enforce health laws.

Dr. Kathleen Bush is the Program Manager for the Environmental Public Health Tracking Program at the New Hampshire Department of Health and Human Services. Her work focuses on human-environment interactions. With a background in environmental epidemiology, she is able to draw on a variety of statistical and geospatial methods to evaluate trends in health outcomes across space and time. Kathleen has several active collaborations with public health professionals at the State and Local level as well as other State Agencies such as the Department of Environmental Services. In addition, she has ongoing partnerships with academic partners across the State. She is committed to building environmental health capacity and increasing awareness of environmental hazards and health equity. Kathleen completed her Ph.D. in 2011 in Environmental Health Sciences at the University of Michigan School of Public Health, where she was also a Graham Environmental Sustainability Doctoral Fellow.

Taking the Drama out of Trauma: Climate Change and Mental Health

Increased incidences of natural disasters, economic and social instability caused by climate change have significant impacts on mental health. Working with people who have experienced trauma, including those affected by climate change impacts, requires an intentional approach to

nurture resilience and recovery. This session will cover the impact of climate change on mental health, and key competencies for all stakeholders in dealing with trauma and mental health as part of community resilience and business continuity. Participants will gain knowledge of the importance for all responders to the impacts of extreme weather events to interact with survivors in a manner that is not "re-traumatizing."

Presenters:

Clifford Mitchell, MS, MD, MPH, Director of the Environmental Health Bureau, Maryland Department of Health

George S. Everly, Jr., PhD, ABPP, FAPA, FAPM, CCISM, Professor of International Health, Johns Hopkins University

Clifford S. Mitchell, MS, MD, MPH is the Director of the Environmental Health Bureau, in the Prevention and Health Promotion Administration, Maryland Department of Health. The Bureau's responsibilities include: food protection; environmental, occupational, and injury epidemiology; and a wide array of healthy homes and injury prevention programs. He joined the Department in 2006, after 14 years on the faculty of Johns Hopkins Bloomberg School of Public Health. Dr. Mitchell received a B.A. from Williams College, an M.S. from the Mass. Institute of Technology, an M.D. degree from Case Western Reserve University, and his M.P.H. from the Johns Hopkins School of Hygiene and Public Health. Dr. Mitchell serves as Principal Investigator for several projects in the Department, including climate change, environmental public health tracking, occupational injury and illness surveillance, violent death surveillance, and the Department's Office of Food Protection Rapid Response Team. He also serves on a number of national and State environmental health advisory committees.

George S. Everly, Jr., PhD, ABPP, FAPA, FAPM, CCISM, is an award-winning author and researcher. In 2016, he was ranked #1 published author in the world by PubMed in two fields: crisis intervention and psychological first aid. He holds appointments as Professor in the Department of International Health (adjunct) at the Johns Hopkins Bloomberg School of Public Health and Associate Professor (part time) in Psychiatry at the Johns Hopkins School of Medicine. He is considered one of the founding fathers of the field of disaster mental health. He is the author, co-author, or editor of 22 textbooks and over 100 professional papers. His latest book is **The Johns Hopkins Guide to Psychological First Aid.** Dr. Everly writes the blog *When Disaster Strikes...* for Psychology Today magazine

Ticks, Mosquitos, Flies, Oh My!

Climate change creates new uncertainties about the spread of vector borne diseases–diseases which are transmitted to humans through insects that carry the disease-causing pathogens. In recent years we've seen outbreaks of dengue fever, malaria, lyme disease and Zika. Warming coastal waters has induced outbreaks of *Vibrio parahaemolyticus*, a bacteria that infects shellfish, which can be transmitted to humans that ingest shellfish. Stephen Jones from the Department of Natural Resources and Marine Science at University of New Hampshire will share research on detection methods for *Vibrio parahaemolyticus*, and strategies for shellfish aquaculture to minimize human exposure to this pathogen. Charles Lubelcyzk will speak about work with the

Maine Medical Center Research Institute on eastern equine encephalitis virus (EEEV), which is increasingly infecting humans and animals in the northeastern United States. Participants will learn what communities can do to manage mosquitos, ticks, flies and other common disease transmitting vectors to increase resilience to disease outbreaks.

Presenters:

Nicholas Ogden, senior research scientist and Director of Public Health Risk Sciences, National Microbiology Laboratory of Public Health Agency of Canada
Steve Jones, Research Associate Professor of Natural Resources & Marine Science, University of New Hampshire & Associate Director, New Hampshire Sea Grant Program
Charles Lubelczyk, Vector Ecologist, Maine Medical Center Research Institute

Dr. Nick Ogden is a UK-trained veterinarian (University of Liverpool, 1983). After 10 years of mixed clinical practice, he completed a doctorate in Lyme disease ecology at the Department of Zoology, University of Oxford in 1996. In 2002 he moved to Canada, where he continued research on the ecology of Lyme disease and other zoonoses and climate change as a research scientist at the Public Health Agency of Canada (PHAC). As interim Director of the Environmental Issues Division of PHAC he directed a program on climate change and vector and water-borne disease risks, and community adaptation to these risks. As Director of the Zoonoses Division he directed programs on national coordination, surveillance and prevention of zoonoses including Lyme disease and West Nile virus. He is now a senior research scientist and Director of Public Health Risk Sciences division within the National Microbiology Laboratory of PHAC focusing on assessing risk by study of the ecology, epidemiology and genetic diversity of vectors and zoonotic and vector-borne micro-organisms, assessing impacts of climate change on zoonoses and vector-borne diseases, and developing tools for public health adaptation.

Steve Jones is a Research Associate Professor of Natural Resources and Marine Science at the University of New Hampshire (UNH), and the Associate Director for the New Hampshire Sea Grant Program. His main research focus over the past 30 years at UNH has been on the incidence, ecology and management of pathogenic *Vibrio* species in shellfish and coastal waters. His research also focuses on application of microbial source tracking methods to identify and track sources of fecal contamination in surface waters, the use of male specific coliphage as an indicator of enteric viruses in shellfish, climate change adaptation strategies for coastal municipalities, bioexposure and effects of toxic chemical in the marine environment, and nutrient dynamics in estuaries. Steve received his PhD from the University of Wisconsin-Madison and was a post-doctoral fellow at Cornell University studying environmental toxicology and a research fellow at Syracuse University before coming to UNH.

Charles Lubelczyk has worked on research into the spread of vector-borne diseases since the late-1990's, while working worth with the Maine Medical Center Research Institute in Scarborough, Maine. A native of New Hampshire, Chuck's work has focused on interactions between ticks and mosquitoes and their host and habitat requirements as well as integrated pest management (IPM) approaches to reducing exposure to vector-borne diseases. He is currently working on projects relating to the distribution of eastern equine encephalitis virus in Maine and New Hampshire, use of deer reduction to control *Ixodes*

scapularis ticks on Maine's island communities, and development of pesticide resistance in mosquito vectors. He currently resides on a farm with his wife Laura and three ungrateful cats in Maine's midcoast.

A Breath of Fresh Air: Managing Air Quality

Burning fossil fuels for energy, driving cars, and incinerating garbage are all practices that cause air pollution leading to a number of health concerns including asthma, allergies, lung disease, anxiety, and depression. The elderly, young children, pregnant women are especially vulnerable. This session will examine the current scientific understanding of the impacts of climate change on air quality and discuss adaptation measures to reduce the public health consequences. It will provide a case study of the collaborative effort between the Boston Public Health Commission, a citizen advocate, the Boston Police Department, the taxicab industry, and Logan Airport that brought hybrid vehicles into the city's taxicab fleet. Topics covered will include the logistics of the partnership and program; how health, air quality, and economic co-benefits supported a climate change mitigation effort; and lessons learned along the way. We will also discuss efforts in New Hampshire to decrease air pollution with the co-benefits of mitigating climate change while supporting healthier and more resilient communities.

Presenters:

Paul Shoemaker, MPH, MBA, Associate Division Director, Environmental & Occupational Health Division, Boston Public Health Commission
Sherry Godlewski, Resilience and Adaptation Manager, NH Department of Environmental Services

Paul Shoemaker is the Associate Director of the Environmental & Occupational Health Division of the Boston Public Health Commission. He is responsible for overseeing and coordinating the broad range of the office's activities including inspector response to potential environmental health hazards, enforcement of local and state public health regulations, and public outreach/education efforts. Mr. Shoemaker is a member of the US Environmental Protection Agency's National Environmental Justice Advisory Council and the National Association of County and City Health Officials' Global Climate Change Workgroup. He also serves as Chair of the Board of Directors of ESAC (www.esacboston.org), a Boston-based multi-service community stabilization organization providing GED education programming to at-risk youth, foreclosure prevention counseling, and free/low-cost home repair services to low income seniors. Mr. Shoemaker holds a Masters of public health from the George Washington University, a Master's in business administration from Boston University and a BA in biology from The Johns Hopkins University.

Sherry Godlewski has worked for NH Department of Environmental Services for 20 years, and has experience in the water, air, waste, and environmental health programs. Currently she serves as the Resiliency and Adaptation Manager. Sherry is co-chair of both the NH Coastal Adaptation Workgroup and the Upper Valley Adaptation Workgroup. She served as the Adaptation Workgroup facilitator for the Governor's Climate Change Policy Task Force and assisted with the development of the New Hampshire Climate Action Plan. She has an M.S. in Environmental Communication and Administration from Antioch University.