2024 CAW CLIMATE SUMMIT

CAW
New Hampshire
Coastal Adaptation
Workgroup
RESOURCEFUL · READY · RESILIENT
nhcaw.org

THURSDAY, JULY 18, 8:30 AM – 4:00 PM

Strawbery Banke Museum, 14 Hancock Street, Portsmouth, NH

Resource Packet Contents

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PROGRAM	
8:30am	**Welcome and Program Introduction** Kirsten Howard
9:00am	**Keynote Address: What Does Equitable Changemaking Require of Us?** Kate O'Brien
10:00am	Break
SESSION 1 ADVANCE KNOWLEDGE AND THE FIELD *Short-and-Sweet Presentations featuring research and learnings from recent studies and work in New Hampshire's coastal communities.*	
10:30am	**Groundwater Modeling and Mapping in New Hampshire's Coastal Zone with a Vulnerability Assessment in Portsmouth, NH** Jayne Knott
10:45am	**Meadow Pond Neighborhood Flood Water Quality Sampling: A Collaborative Approach to Addressing Coastal Hazards** Aidan Barry & Tom Bassett
11:00am	**Expanding the Seabrook-Hampton Coastal Resilience Toolbox: The Economy and Flood Vulnerability for Hampton, Hampton Falls, and Seabrook, NH** Jay Diener & Rayann Dionne
11:15am	**Municipal Land Conservation Planning for Flood Resilience in New Hampshire's Coastal Watershed** Michal Zahorik
11:30am	**Art x Science Panel** Jo Field, Billy Karugira, & Elise Sullivan
11:45am	**CAW Community Champion Award Presentation**
12:00pm	**Lunch**
1:00pm	**Pop-up Session:** Attendees are invited to briefly share recent accomplishments, project updates, new ideas, and upcoming opportunities, or pose a question to the adaptation practitioners and community leaders present.

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SESSION 2 CATALYZE PRINCIPLED CLIMATE ADAPTATION *Short-and-Sweet Presentations about projects sparking meaningful progress toward healthy and vibrant ecosystems and communities.*	
1:15pm	**Historic Preservation Meets Resilience: Finding the Balance** Rodney Rowland
1:30pm	**Rising Seas and Rising to the Opportunity on Cape Ann: From Living Seawalls at Marine Stations to Floodable Coastal Parks with Working Waterfronts** Alex Maxwell & Chelsea Zakas
1:45pm	**Recording New Hampshire's Vulnerable Coastal Indigenous Heritage** Meghan Howey, Paul Pouliot (Sag8mo) & Denise Pouliot (Sag8moskwa)
2:00pm	**Historical Use Revealed by Salt Marsh Impairments Informs New Restoration Approaches** David Burdick
2:15pm	Break
SESSION 3 EVOLVE OUR PRACTICE *Stories from practitioners leading equitable climate adaptation, followed by a facilitated panel discussion about paradoxical challenges and emerging possibilities they encounter in this work.*	
2:45pm	**The Tide is Rising and So are We: Choosing Hope in Hard Times** Julie Wormser **A Framework for Flood Ready Neighborhoods: How We Are Unlearning Everything We Thought We Knew About Providing Technical Assistance** Alyson Eberhardt & Kirsten Howard **Updating New Hampshire's Coastal Flood Risk Science and Guidance** Jennifer Gilbert & Lisa Wise
3:45pm	**Closing Remarks,** Cory Riley
4:00pm	Adjourn

KEYNOTE SPEAKER INFORMATION

Kate O'Brien – *Catalyst Collaboratives*

Email: kate@catalystcollaboratives.com | Website: https://www.catalystcollaboratives.com/

Kate O'Brien is founder and principal consultant of Catalyst Collaboratives, a small consultancy focused on helping clients co-create, navigate, and manage change that is rooted in equity and anti-oppression, and driven in pursuit of belonging, justice, and collective liberation. Based in Portland, Maine, Kate approaches her work by drawing on the national network of collaborators, partners, and practitioners she's cultivated over two decades while supporting the capacity of nonprofits, grassroots groups, and municipalities in environmental justice communities across the country.

Through Catalyst Collaboratives, Kate supports her clients by building and leading purposeful teams that provide collegial, culturally competent, and emotionally attuned support through each step of the journey to create something new, whether a brownfield redevelopment project, community-driven planning process, or organizational culture change initiative. Trained as a social worker, urban planner, and policy analyst, Kate began her career as a psycho-social case manager for people with serious and persistent mental illness. After supporting her clients as they journeyed to wellness through behavioral health, economic, and other social systems, Kate moved into the community development field while pursuing graduate studies in urban and environmental policy and planning at Tufts University. Throughout her career, Kate has assumed a generalist role, managing teams of subject matter experts (engineers, planners, economists, public health practitioners, etc.) and everyday people who contributed to several dynamic, multi-year transformational initiatives—whether brownfield-to-park project, organizational culture change initiative, community organizing strategy, and visions for which were and are shaped by stakeholders whose social identities experience the most marginalization in society.

As a white cis-gender woman working alongside colleagues and communities of color, Kate has spent two decades building bridges across difference by nurturing authentic relationships, and reflecting deeply on the ways power, privilege, and identity intersect and influence systems, interactions, and outcomes. Kate relates these experiences and perspectives to her clients, encouraging them to do their own deep work in order to leverage the synergy created when human beings connect and co-create cultures of care and belonging. Kate is the mother of two school-aged children who attend Portland Public Schools, where she volunteers as a parent and family engagement organizer. A lover of nature, Kate enjoys "finding flow" through pursuits such as mountain biking, hiking, snowboarding, drawing, and gardening.

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SPEAKER BIOS & CONTACT INFORMATION

Jayne Knott – *JFK Environmental Services LLC (HydroPredictions)*

Email: jfknott@hydropredictions.com | Website: https://hydropredictions.com/

Jayne F. Knott, Ph.D., founded JFK Environmental Services LLC (HydroPredictions), a consulting firm specializing in groundwater hydrology, groundwater remediation, groundwater/surface-water interactions, and climate change adaptation. Dr. Knott's work focuses on simulating changes in groundwater flow caused by rising temperatures, changing seasons, and rising sea levels. In this work, she has identified vulnerable infrastructure and natural systems, potential areas of water-quality degradation, and investigated adaptation alternatives. Dr. Knott holds a Ph.D. in Civil and Environmental Engineering from the University of New Hampshire, an M.S. degree in the same from MIT, and a B.A. in geology and physics from Mount Holyoke College.

Aidan Barry – *NHDES Coastal Program*

Email: Aidan.t.barry@des.nh.gov | Website: https://www.des.nh.gov/water/coastal-waters

Aidan Barry is the Coastal Resilience & Habitat Specialist for the NHDES Coastal Program. In his role he collects environmental data to characterize change and trends in NH's salt marshes, monitors invasive species and seeks funding opportunities to advance coastal restoration. Additionally, he is a member of the Coastal Landowner Technical Assistance Program which offers landowners help to understand coastal flood risk and identify strategies to manage their property in a changing environment.

Tom Bassett – *Hampton Coastal Hazards and Adaptation Team (CHAT)*

Email: tombassett6@gmail.com | Website: http://shea4nh.org/coastal-hazards-adaptation-team-chat/

Tom Bassett is a resident representative to the Coastal Hazards Adaptation Team (CHAT) in Hampton, NH, and neighborhood liaison to the Flood Ready Neighborhoods Program for the Meadow Pond area of Hampton. He monitors flooding in his neighborhood and seeks solutions with his neighbors on ways to mitigate coastal flooding hazards. Bassett divides his time between coastal NH and east central Illinois where he is Professor Emeritus in the Department of Geography and GIS at the University of Illinois at Urbana-Champaign.

Jay Diener – *Seabrook-Hamptons Estuary Alliance*

Email: jdiener@shea4nh.org | Website: www.shea4nh.org

Jay is a founding member and current president of the Seabrook-Hamptons Estuary Alliance (SHEA); a member of the Seabrook-Hampton Estuary Collaborative and its steering committee; a member of the NH Coastal Adaptation Workgroup; board member of the NH Association of Conservation Commissions; vice chair of the Hampton Conservation Commission; member of Hampton's Coastal Hazards Adaptation Team (CHAT); and past president and board member of the Great Bay Stewards.

Rayann Dionne – *Seabrook-Hamptons Estuary Alliance*

Email: rdionne@shea4nh.org | Website: www.shea4nh.org

Rayann Dionne is the Executive Director/Project Lead and a founding member of the Seabrook-Hamptons Estuary Alliance (SHEA). Since its inception in 2013, SHEA has dedicated itself to preserving, restoring, and advocating for the Hampton-Seabrook Estuary. Rayann has organized and supported numerous initiatives to build community relationships, increase engagement, and raise awareness about the estuary's vital ecosystem functions. She previously worked for over a decade as Hampton's Conservation Coordinator, focusing on wetland and floodplain compliance, public outreach, and land conservation. Rayann holds a degree in Biochemistry and is currently completing her MBA.

Michal Zahorik – *University of New Hampshire*

Email: michal.zahorik@unh.edu | Website: www.unh.edu

Michal Zahorik is currently pursuing a Ph.D. in the Natural Resources and Earth Systems Science program at the University of New Hampshire. His research focuses on nature-based approaches to flood risk management. Recently, Michal was awarded the UNH Sustainability Fellowship, allowing him to collaborate with the Town of Eliot on assessing climate change impacts and resilience strategies. Michal lives in Newmarket where he serves as a Planning Board member.

Rodney Rowland – *Strawbery Banke Museum*

Email: rrowland@sbmuseum.org | Website: https://www.strawberybanke.org

Rodney Rowland first joined Strawbery Banke Museum, the living history museum in downtown Portsmouth, NH, as a volunteer in 1976 and joined the staff in 1990. His involvement has always focused on the preservation and long-term sustainability of this important historic site. He is currently responsible for the 37 buildings on the 9-acre site, overseeing the Facilities, Restoration and Landscape Departments and is the project manager for various projects. One project is the museum's Sea Level Rise Initiative, a resiliency initiative that aims to protect this important historic resource from the impacts of flooding.

Alex Maxwell – *Fuss & O'Neill, Inc.*

Email: alex.maxwell@fando.com | Website: www.fando.com

Alex is a Project Manager and Senior Environmental Planner with over 12 years of experience working on a range of environmental planning and engineering projects from river corridor master plans to environmental impact evaluations, municipal climate action plans to coastal flood resilience projects. Through his work, Alex has demonstrated his experience leading and implementing both virtual and in-person community engagement activities that have included community-led design and planning charrettes, environmental justice outreach, and stakeholder workshops that honor local voices and knowledge, while also engaging in science-based discussions of how communities are shaped by – and adapting to – changes in climate.

Chelsea Zakas – *Fuss & O'Neill, Inc.*

Email: chelsea.zakas@fando.com | Website: www.fando.com

Chelsea is an environmental planner with experience engaging communities in the planning process of numerous climate resilience and sustainability plans. With a background in municipal planning, Chelsea has acted as a liaison between the public and government agencies, translating complex policy issues and engineering designs into accessible language and facilitating constructive dialogue to address community concerns. Chelsea has had the privilege to work on a variety of public engagement projects ranging from virtual listening sessions to town halls, to multiple-day in-person community workshops. She is committed to fostering an inclusive environment and prioritizing equity in the outreach and engagement process.

Meghan Howey – *University of New Hampshire*

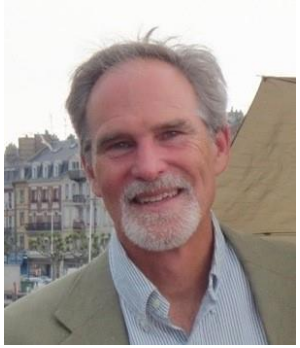
Email: meghan.howey@unh.edu | Website: https://cola.unh.edu/center-humanities

Meghan Howey, Professor, Anthropology (UNH), is an anthropological archaeologist who leads the Great Bay Archaeological Survey (GBAS), a community engaged and collaborative archaeological research program focused on recovering overlooked stories of early colonialism in coastal NH.

Denise and Paul Pouliot – *Cowasuck Band of the Pennacook - Abenaki People*

Email: cowasuck@tds.net| Website: https://www.cowasuck.org/

Paul and Denise Pouliot are the head speakers of the Cowasuck Band of the Pennacook – Abenaki People, regional leaders dedicated to community activism and education protecting and promoting Indigenous New Hampshire. They have expertise in traditional knowledge/science, foodways, craft traditions, landscapes, cultural heritage, and more. They are long-term collaborators on GBAS where we are working together to blend western and Indigenous ways of knowing for improved understandings of our shared past and to build an inclusive future.



David Burdick – *Jackson Estuarine Lab / School of Marine Sciences & Ocean Engineering, University of New Hampshire*

Email: dburdick@usnh.com | Website: https://marine.unh.edu/research-centers/facilities/jackson-estuarine-laboratory

Dr. David Burdick is Director of the Jackson Estuarine Laboratory in the School of Marine Science and Ocean Engineering and Research Associate Professor in the Department of Natural Resources at the University of New Hampshire. Burdick studies and teaches the ecology and restoration of several coastal habitat types, primarily salt marshes. In 2012, he was awarded the Susan Snow-Cotter Leadership Award from the Gulf of Maine Council for the Marine Environment for his work on coastal habitat restoration. Recently he joined the Salt Marsh Adaptation and Resilience Teams (SMARTeams) to promote marsh rebuilding through restoration of surface hydrology.

Julie Wormser – *Mystic River Watershed Association*

Email: julie.wormser@mysticriver.org | Website: www.Mysticriver.org / LinkedIn

Julie Wormser is the Mystic River Watershed Association's Senior Policy Advisor and co-founder of the Resilient Mystic Collaborative. Since its launch in September 2018, the RMC has grown to include 20 municipalities and has secured nearly $130 million in funding to pursue regional climate preparedness projects. As Executive Director of The Boston Harbor Association, Wormser was instrumental in drawing attention to Boston's need to prepare for coastal flooding from extreme storms and sea level rise. She has a BA in biology from Swarthmore College and an MPA from Harvard University's Kennedy School of Government.

Alyson Eberhardt – *NH Sea Grant Extension*

Email: Alyson.eberhardt@unh.edu | Website: seagrant.unh.edu/ and extension.unh.edu/

Alyson works with people and coastal ecosystems in her role as Coastal Ecosystems Specialist/Associate Extension Professor with NH Sea Grant and UNH Cooperative Extension. Alyson engages community members, natural resource managers, and researchers in community-based restoration and monitoring of coastal habitats. She also manages the Coastal Research Volunteers, a participatory science program that partners with community volunteers on local, coastal research projects to inform local decision making. Alyson loves to talk about eels.

Kirsten Howard – *NHDES Coastal Program*

Email: kirsten.b.howard@des.nh.gov | Website: www.des.nh.gov/water/coastal-waters

Kirsten Howard is the Resilience Program Coordinator for the New Hampshire Department of Environmental Services Coastal Program. Kirsten assists New Hampshire's 17 coastal communities to plan and prepare for coastal hazards such as sea-level rise and storm flooding by providing technical assistance, grant support, and serving as a liaison on state policy issues. Kirsten is a Certified Floodplain Manager and received a B.A. from Brown University and a M.S. from the University of Michigan. Kirsten is originally from British Columbia, Canada, and lives in Portsmouth with her husband, daughter, and dog. She likes baking, cycling, and a good story.

Jennifer Gilbert – *NHDES Coastal Program*

Email: Jennifer.r.gilbert@des.nh.gov | Website: www.des.nh.gov/water/coastal-waters

Jennifer Gilbert is the Resilience Project Manager at the New Hampshire Department of Environmental Services (NHDES) Coastal Program. She provides outreach and technical assistance to assist state agencies, coastal municipalities, and other stakeholders understand and incorporate coastal floodplain management higher standards and best-available coastal flood risk science in decision-making. She also manages coastal resiliency project grants and technical assistance grants for five partner organizations. Prior to joining NHDES in August 2023, Jennifer was the state's Floodplain Management Program coordinator since 2005 and the director of the state's planning office since 2014.

Lisa Wise – *NH Sea Grant Extension*

Email: lisa.wise@unh.edu | Website: seagrant.unh.edu/ and extension.unh.edu/

Lisa Wise has been the Climate Adaptation Program Manager with NH Sea Grant and UNH Cooperative Extension since 2017, working with New Hampshire communities to build awareness of and resilience to the impacts of a changing climate. She serves as the Outreach Subcommittee co-chair for the NH Coastal Adaptation Workgroup and participates in the Upper Valley Adaptation Workgroup. Lisa completed both her bachelor's and master's degrees at the University of New Hampshire. Outside of work, Lisa enjoys adventuring with her four-year-old twins and volunteering on her local conservation commission in Eliot, Maine.

ARTIST BIOS & CONTACT INFORMATION

Vidya Balasubramanyam – *Coastal States Organization*

Email: vbalasubramanyam@coastalstates.org | Website: www.coastalstates.org

I work for the Coastal States Organization as the Program Director. In my role, I facilitate peer learning, inter agency coordination, and lots of different projects across the many coastal states and territories. I love working on topics relating to environmental justice in the coastal context and have been infusing more arts, storytelling, and consensus building emergent modalities into my work. I used to work for the NHDES Coastal Program and then worked in the Great lakes and now I work nationally. I love thinking about the interconnectivity of different coastal regions and how stories and lessons can percolate and enrich seemingly separate coastal regions. I've learned that our struggles are all so interconnected and the only way to overcome them is to think globally, act locally."

Additional Information: www.coastalstates.org/healing-our-relationship-with-great-lakes-habitats-honoring-our-stories/

Polly Crocker – *NH Department of Environmental Services*

Email: Pauline.f.crocker@des.nh.gov | Website: https://www.des.nh.gov/water/coastal-waters

Polly Crocker is a Watershed Management Specialist with the New Hampshire Department of Environmental Services with over 15 years of experience in stormwater management. From agricultural best management practices with the farmers of Vermont, to green stormwater infrastructure in the dense urban environments of California, to municipal vulnerability assessments in Massachusetts, Polly likes to focus on multi-benefit solutions to stormwater challenges. In her current role she manages the Critical Flood Risk Infrastructure Grant and the Culvert Flood Risk Assistance Grant programs, helping NH become more resilient to flooding from intense storm events and sea level rise due to climate change.

Additional Information: New Hampshire Stream Crossing Initiative

Jo Field – *University of New Hampshire*

Email: Jo.Field@unh.edu | Website: https://gradschool.unh.edu/natural-resources-earth-systems-science-phd

Originally from Bristol, England, I moved to New Hampshire in 2021 to gain my doctorate in Natural Resources and Environmental Studies from the University of New Hampshire. My research focuses on resilience-building at the local level in New Hampshire, focusing specifically on extreme heat impacts and the roles of community engagement and social capital in building resilience. I live in Dover, and outside of my PhD, I work as a fellow in the Carsey School for Public Policy at UNH, co-run a community garden, and like to spend time connecting with my community in the outdoors.

Billy C. Karugira – *Saint Anselm College Community Resilience and Social Equity Lab*

Email: Bkarugira264@anslem.edu | Website: http://www.anselm.edu.crse

Billy Karugira is a senior student at Saint Anselm College, passionate about community engagement and supporting youth. Originally from Burundi, he moved to the U.S. at age 15. He works as an academic mentor and ambassador for the Meelia Center and the Men of Color group, collaborating with the Manchester school district to empower students of color. He is the Summer INBRE Fellow to the Community Resilience & Social Equity Lab, working under the direction of Dr. Loretta Brady conducting research focused on the impact of sleep and climate change on youth mood and performance.

Natalie Meulenbroek

Email: nataliemeulenbroek@gmail.com | Website: www.nataliemeulenbroek.com

Natalie Meulenbroek is an artist based in Boston, MA and the seacoast of New Hampshire. She is currently studying studio art at the School of Museum of Fine Arts at Tufts University. Natalie has found great solace in the medium of oil painting, always seeking to discover unique qualities of color, light, and shadow. However, she loves to experiment in a variety of mediums, including charcoal, watercolor, oil pastel, and colored pencil. Her work has been exhibited and sold at the NH Art Association's Robert Lincoln Levy Gallery, the Sheafe Warehouse, and Lang's Corner Provisions.

Elise Sullivan

Email: esullivannh@gmail.com | Instagram: https://www.instagram.com/elise.sullivannh

Elise Sullivan is a photographer and scientist who lives in the seacoast. Her love of nature combined with her training as a Ph.D. in marine biology strongly influences her subject matter. For Elise, looking through a camera lens is a creative extension of her love of peering into a microscope. She focuses on macrophotography and documenting human interactions with nature, whether that be capturing scientists doing field research or fishermen and farmers, who know the forces of nature intimately through their work. Elise also believes in the power of visual communication as a tool to engage the public in science.

Charlotte Thompson – *UNH Cooperative Extension*

Email: Charlotte.Thompson@unh.edu | Website: https://extension.unh.edu/

Charlotte is a science communicator, educator and artist. She is the Stewardship Outreach Program with UNH Cooperative Extension where she helps organizations and volunteers across New Hampshire manage conservation land. Charlotte leads communications for Nature Groupie, which helps groups recruit outdoor volunteers. She is interested in human dimensions of natural resource management and how art can be used to communicate environmental issues.

PRESENTATION SUMMARIES & LINKS TO ADDITIONAL RESOURCES

SESSION 1: ADVANCE KNOWLEDGE AND THE FIELD

Short-and-sweet Presentations featuring research and learnings from recent studies and work in New Hampshire's coastal communities

Groundwater Modeling and Mapping in New Hampshire's Coastal Zone with a Vulnerability Assessment in Portsmouth, NH

Jayne Knott, JFK Environmental Services LLC (HydroPredictions)

This presentation introduces a groundwater modeling, mapping, and monitoring study funded by the State of New Hampshire Department of Environmental Services (NHDES) Drinking Water State Revolving Fund. This is a collaborative effort between NHDES (Drinking Water Branch and the Coastal Programs), the City of Portsmouth, JFK Environmental Services LLC (HydroPredictions), and Jennifer M. Jacobs and Associates (JMJ). The modeling work simulates groundwater rise and salt-water intrusion caused by sea level rise. Maps of estimated water-table depths throughout the NH Seacoast for various sea level rise scenarios will be made available to the public through the Coastal Viewer.

Additional Information:

- Sea-Level Rise Impacts on Groundwater Levels and Water Quality: A Vulnerability and Planning Study in Durham, NH (2022)
- Sea-Level Rise Impacts on Drinking Water: A Groundwater Modeling Study in Newmarket, NH (2017)
- Knott, J.F.; Jacobs, J.M.; Daniel, J.S., and Kirshen, P., 2019. Modeling groundwater rise caused by sea-level rise in coastal New Hampshire. *Journal of Coastal Research*, 35(1), 143-157. Coconut Creek (Florida), ISSN 0749-0208.
- New Hampshire Coastal Flood Risk Summary Part 1: Science (2019)
- New Hampshire Coastal Flood Risk Summary Part II: Guidance for Using Scientific Projections (2020)
- Jayne F. Knott & Jennifer M. Jacobs & Jo E. Sias & Paul Kirshen & Eshan V. Dave, 2019. "A Framework for Introducing Climate-Change Adaptation in Pavement Management," Sustainability, MDPI, vol. 11(16), pages 1-23, August.

Meadow Pond Neighborhood Flood Water Quality Sampling: A Collaborative Approach to Addressing Coastal Hazards

Aidan Barry, NHDES Coastal Program, and Tom Bassett, Hampton Coastal Hazards and Adaptation Team (CHAT)

This presentation highlights the collaborative efforts to raise awareness of an ongoing neighborhood water quality issue. Meadow Pond is a tidal waterbody in Hampton that periodically floods the surrounding neighborhoods during spring tides and storm events. Led by Hampton Coastal Hazards Adaptation Team (CHAT) resident representative, Tom Bassett, and support from the Flood Ready Neighborhoods Program, the NHDES collected water quality samples and shared the results with neighbors and the Town of Hampton Department of Public Works. The ongoing monitoring has resulted in warnings about the water quality and several neighborhood discussions to identify solutions and next steps.

Additional Information:

- Flood Ready Neighborhoods Project
- Hampton Coastal Hazards Adaptation Team (CHAT)
- Coastal Landowner Technical Assistance Program
- T. Bassett and C. Spindel. This Stoway Plant is Here to Stay. In A. L. Tsing, J. Deger, A. S. Keleman and F. Zhou. (Eds). *Feral Atlas: The More-Than-Human Anthropocene*. Palo Alto: Stanford University Press, 2020.

Expanding the Seabrook-Hampton Coastal Resilience Toolbox: The Economy and Flood Vulnerability for Hampton, Hampton Falls, & Seabrook, NH

Jay Diener and Rayann Dionne, Seabrook-Hamptons Estuary Alliance

The "Economy and Flood Vulnerability" report provides a snapshot of the potential fiscal impacts from sea level rise and storm surge in the three Seabrook Hampton Estuary communities (Hampton, Hampton Falls, and Seabrook), looking to 2050. This assessment tool helps enhance the understanding of potential economic changes by evaluating impacts to businesses and employees as well as residential property types, total assessed values and tax revenue loss that each community may face over the next 25 years. This presentation provides an overview of the assessment's methodology, highlights some of the major findings, and outlines how this report can be used.

Additional Information:

- Economic Report, May 2024, prepared by the NOAA Office for Coastal Management for SHEA

Municipal Land Conservation Planning for Flood Resilience in New Hampshire's Coastal Watershed

Michal Zahorik, University of New Hampshire

Strategic land conservation helps communities to become more resilient to flooding. It preserves vulnerable areas from development and enhances ecosystem functions and services. Our qualitative research investigates how municipal land conservation strategies advance flood resilience in New Hampshire's coastal watershed. Our research indicates that despite substantial empirical evidence of environmental and economic benefits, flood storage and flood mitigation as conservation goals are not widely prioritized in the watershed.

Art x Science Panel

Jo Field, Billy Karugira & Elise Sullivan

This year CAW made a concerted effort to include art in the Climate Summit, both in the space and now, in conversation. There were several reasons for this. As this panels, moderator Tori Bamford writes, "Art is individual and collective. The act of creating art is personal and comes from our own lived experiences, AND art is communal in that it can make a feeling or experience tangible for others. Art is science as a way of observing, documenting, and communicating the world around us. In the way we've used ancient cave drawings in France to better understand the lives of our hominid ancestors to the Fifth National Climate Assessment in 2023, which included art to creatively visualize climate change alongside, its causes, impacts, and manifestations; our

shared vulnerabilities; and the strength of our collective response. Art is how we understand ourselves and the world around us." This panel will engage artists and students in exploring the intersection of a art and science and the role of communities to promote art in climate resilience efforts.

Additional Information: *See artist bios above.*

SESSION 2: CATALYZE PRINCIPLED CLIMATE ADAPTATION

Short-and-sweet Presentations about projects sparking meaningful progress toward healthy and vibrant ecosystems and communities.

Historic Preservation Meets Resilience: Finding the Balance

Rodney Rowland, Strawbery Banke Museum

Bringing resiliency to an historic site has several inherent challenges associated with it. One of the most difficult is finding the balance between historic preservation philosophy and resiliency strategies. History will be lost without this important adaptation but is also lost in trying to adapt. How can museums find the balance and protect historic resources with losing more original materials as they might otherwise. This presentation will offer one case study focusing on the 1750 Penhallow House at Strawbery Banke Museum.

Additional Information:

- Strawbery Banke Sea Level Rise Initiative

Rising Seas and Rising to the Opportunity on Cape Ann: From Living Seawalls at Marine Stations to Floodable Coastal Parks with Working Waterfronts

Alex Maxwell & Chelsea Zakas, Fuss & O'Neill, Inc.

This presentation provides a brief overview of two coastal resilience projects. The first focuses on Manchester-by-the-Sea's Coastal Vulnerability Action Plan. The plan was developed through a robust community engagement process to establish a long-term conceptual roadmap for Manchester to reduce coastal flood risks and increase coastal resilience through targeted, action-oriented mitigation measures. The second centers on a project at UMass Amherst's Gloucester Marine Station to make much-needed site improvements that not only address deferred maintenance concerns but also present opportunities to slowly transform the station into a living laboratory.

Additional Information:

- Manchester-by-the-Sea Project Coastal Vulnerability Action Plan Project Website

Recording New Hampshire's Vulnerable Coastal Indigenous Heritage

Meghan Howey, University of New Hampshire, & Paul (Sag8mo) and Denise (Sag8moskwa) Pouliot, Cowasuck Band of the Pennacook - Abenaki People

We briefly explore the deep-time Indigenous occupation of coastal New Hampshire and traditional practices associated with its rich resources. The legacies of Indigenous lifeways here are embedded in place but the region's cultural heritage sites are at high risk of damage and/or total destruction from climate

change impacts, especially sea level rise. Many of these significant (and sacred) sites are unrecorded. Here, we discuss our pilot program aimed at exploring if, and how, non-destructive technologies (GPR and Magnetometry) can help expedite the recording of these sites in the vast landscape of coastal NH before they are washed away.

Additional Information:

- Indigenous New Hampshire Collaborative Collective
- From the Fragments: The Places and Faces of the Great Bay Archeological Survey

Historical Use Revealed by Salt Marsh Impairments Informs New Restoration Approaches

David Burdick, Jackson Estuarine Lab / School of Marine Sciences & Ocean Engineering, University of New Hampshire

Colonial farming in salt marshes was intensive, terraced and covered all today's salt marshes. Abandoned about 180 years ago, most late 1800s farmers redirected efforts to grow and harvest salt hay until 1920. As sea level rise accelerates, the remaining infrastructure – embankments and drainage ditches – work in opposite ways but both cause marshes to deteriorate becoming less resilient. Using the SMARTeams 4-Tier approach, embankments and parallel ditches are replaced by a dendritic single channel network to increase plant productivity, elevation, and stored carbon, ultimately increasing marsh and community resilience. Several pilot projects have begun in New Hampshire.

Additional Information:

- Adamowicz, S.C., Wilson, G., Burdick, D.M. *et al.* Farmers in the Marsh: Lessons from History and Case Studies for the Future. *Wetland Science and Practice*, July 2020 edition.
- Burdick, D.M., Moore, G.E., Adamowicz, S.C. *et al.* Mitigating the Legacy Effects of Ditching in a New England Salt Marsh. *Estuaries and Coasts* 43, 1672–1679 (2020). https://doi.org/10.1007/s12237-019-00656-5
- McKown, J.G., Burdick, D.M., Moore, G.E. *et al.* Runnels Reverse Mega-pool Expansion and Improve Marsh Resiliency in the Great Marsh, Massachusetts (USA). *Wetlands* 43, 35 (2023). https://doi.org/10.1007/s13157-023-01683-6

SESSION 3: EVOLVE OUR PRACTICE

Stories from practitioners leading equitable climate adaptation, followed by a facilitated panel discussion about paradoxical challenges and emerging possibilities they encounter in this work.

The Tide is Rising & So Are We: Choosing Hope in Hard Times

Julie Wormser, Mystic River Watershed Association

Hope can be hard to come by when facing down something as existential as climate change. Long time environmental organizer and co-founder of the Resilient Mystic Collaborative, Julie Wormser speaks of how Boston-area communities are successfully working together to bring more beauty, safety, and fairness to the people and places most at risk from extreme weather.

Additional Information:

- Resilient Mystic Collaborative website

A Framework for Flood Ready Neighborhoods: How We Are Unlearning Everything We Thought We Knew About Providing Technical Assistance

Alyson Eberhardt, NH Sea Grant Extension & Kirsten Howard, NHDES Coastal Program

Alyson Eberhardt and Kirsten Howard will share on behalf of a larger collaborative, about the Flood Ready Neighborhoods program, or FRN. FRN pilots a neighborhood-scale, principles, and asset-based approach to develop and implement resilience actions in six flood-prone neighborhoods across coastal New Hampshire. Kirsten and Alyson share some stories of how they are unlearning old approaches and developing new to us ideas about how we take a community centered approach to planning for resilience.

Additional Information:

- FRN Guiding Principles
- Some key readings:
  - Emergent Strategy by Adrienne Maree Brown
  - Say the Quiet Part Out Loud by Bina Patel
  - Achieving Equitable Community Development by Liz Blackwell Moore and Kate O'Brien
  - Being a Scientist Means Taking Sides by Mary O'Brien
  - Pollution is Colonialism by Max Liboiron

Updating New Hampshire's Coastal Flood Risk Science and Guidance

Jennifer Gilbert, NHDES Coastal Program & Lisa Wise, NH Sea Grant Extension

Jennifer Gilbert and Lisa Wise will share about the upcoming update to New Hampshire's Coastal Flood Risk Summary (CFR), which includes two parts, "Part I: Science" (2019) and "Part II: Guidance for Using Scientific Projections" (2020). Attendees will learn about the process and timeline for this update and plans for engagement and training to support coastal communities to use these updated resources. Attendees will also learn about planned strategies to

integrate equity and inclusion throughout the project. Summit attendees will learn about how to stay up to date about this effort and will be invited to contribute ideas for improving the process.

Additional Information:

- NH Coastal Flood Risk Summary webpage