



Carolinas Collaborative on Climate, Health, and Equity

A NOAA CAP/RISA team



We are a team of physical and social scientists, community leaders, researchers, outreach professionals, and students - building community partnerships to advance climate resilience and health equity.

Our activities at a glance:

RESEARCH

24 climate, health, and/or equity focused publications

PUBLIC PROGRAMS & POLICY INFLUENCE

7 collaborations with local government

OUTREACH

50 workshops, events, conferences, and exhibits

Photo credit: Thomas Thelen

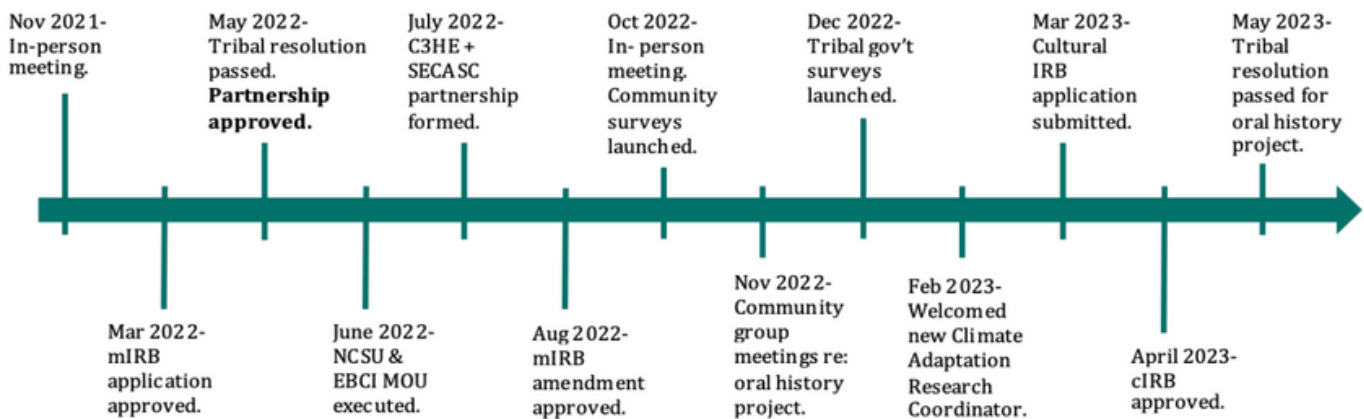
Featured Community: EBCI

Planning for the Next Seven Generations with the Eastern Band of Cherokee Indians (EBCI)

This tribal-led community partnership integrates Traditional Ecological Knowledge from Tribal Government and community entities and technical climate, health, and social science expertise from the C3HE team.

The goals of our five-year partnership with the EBCI are to (1) identify and prioritize climate and health hazards in collaboration with EBCI Tribal Government leaders and community members and (2) develop a Tribal Government Climate Action Plan to enhance tribal capacity to develop climate resilience solutions now and in the future.

In the past year, we made progress toward an EBCI Tribal Climate Action Plan through the following activities:



Key project deliverables:

- **Climate risk assessment surveys:** We are conducting two surveys to understand climate concerns of (1) Tribal Government staff and (2) Tribal Community members. Results of these surveys will be incorporated into the Tribe's Climate Action Plan and inform tailored communication strategies to achieve tribal-wide participation and buy-in from all members.
- **Climate hazard profiles:** We have created profiles on historical and projected changes in drought, extreme heat, extreme precipitation, and wildfires for Cherokee and Qualla Boundary. These profiles will be used to communicate with community members about climate hazards.
- **Oral Histories with Tribal Elders:** In collaboration with the Museum of Cherokee Indian (MCI) and the Kituwah Adult Language Program, we are working to archive the richness of the Cherokee language as a direct expression of the Tribe's traditional knowledge and connection to place. The stories, perspectives, and words shared by the people participating in this project will directly influence and serve as an important foundation for the EBCI's Climate Action Plan.

Through collaboration with native Cherokee speakers, the following Cherokee translation of "climate change" was created, **E-lo-hi-a(d)-ste-da-li-sgv-i**, which better reflects the traditional knowledge of a people who have lived with the land for a very long time, and honors the relationship to the land.

IMPROVING COASTAL ONSITE WASTEWATER TREATMENT SYSTEMS (OWTS)

Storm surges and heavy precipitation can lead to malfunction of conventional septic systems in coastal North Carolina.



Photo credit: Dr. Jane Harrison

Co-PI Dr. Jane Harrison led an interdisciplinary research team to evaluate existing onsite wastewater technologies under multiple climate conditions in the coastal Carolinas. Findings show that septic systems can malfunction following storms and heavy precipitation. Based on study results, recommendations include: incorporation of weather and climate risk in OWTS development; maintenance protocols to ensure effective treatment of bacteria, nitrogen, and phosphorus; and improved communication structure between regulators and homeowners.

Results were compiled in a public report and a peer-reviewed publication. Key recommendations were included in the Town of Nags Head updated decentralized wastewater plan, which was approved in spring 2022. Findings were also disseminated to OWTS operators/installers and health officials. Communities such as Folly Beach, SC, are using results to inform climate adaptation activities, and environmental organizations are relying on the recommendations to steer advocacy efforts.

Vorhees, L., Harrison, J., O'Driscoll, M., Humphrey, C., & Bowden, J. (2022). Climate change and onsite wastewater treatment systems in the Coastal Carolinas: Perspectives from wastewater managers. *Weather, Climate, and Society*, 14(4), 1287–1305. <https://doi.org/10.1175/wcas-d21-019>

ENVIRONMENTAL JUSTICE IN DISASTER RESPONSE

Disaster response efforts can worsen inequity, but this can be avoided through improved processes and acknowledgment of disadvantaged communities.

Co-lead PI Dr. Louie Rivers contributed to a study that examines how nonprofit organization leaders identify and respond to the needs of disadvantaged populations during disaster recovery efforts. Qualitative research was conducted with 19 representatives of nonprofit organizations in Wilmington, NC, who participated in response activities following the occurrence of Hurricane Florence in 2018. This study focused on the recognition of and support provided to the Latinx community, an expanding population in Wilmington.

Results revealed a range in the level of acknowledgement of the unique needs of the Latinx community. While the manner in which each organization developed and expressed their recognition of the Latinx community varied, the findings illustrate that nonprofit leaders are interested in promoting just outcomes. Having an in-depth understanding of disadvantaged communities, such as the Latinx community, is vital in designing disaster response and recovery policies, procedures, and programs. Recognition of the distinct situation of various populations, especially those most at risk, can help design tailored responses to environmental hazards, fostering more equitable outcomes.

Vilá, O., Cutts, B., Knollenberg, W., & Rivers, L. (2023). Environmental justice in disaster recovery: Recognition of the Latinx community by nonprofit leaders. *Climate Risk Management*, 40, 100502. <https://doi.org/10.1016/j.crm.2023.100502>

Looking Forward

Community Project Plans

Greenville County

Enhancing coordination between communities and local government to integrate climate resiliency into local comprehensive plans

Special Emphasis Neighborhoods in Greenville and their Risks / Concerns



Photo credit: Dr. Geoffrey Habron

Williamsburg

Identifying the impact of recurrent flooding and hurricanes on critical infrastructure in frontline communities



Photo credit: Dr. Natasha Malmin

Albemarle Region

Advancing climate fluency and health equity with the Albemarle Regional Health Services



Photo credit: Dr. Rebecca Ward

Ocracoke

Assessing the impact of compounding disasters - Hurricane Dorian and the COVID-19 pandemic - to inform future community planning



Photo credit: Dr. Caela O'Connell

Broadening our Work in South Carolina

During the next year, we will be proactively working to expand our partnerships throughout the state of South Carolina. Our team will be scoping out opportunities for collaborating with frontline communities specifically considering factors of equity, probability of exposure to climate hazards, and the possibility of intervention. We will examine where and how the expertise on the C3HE team can appropriately and effectively advance climate resilience and health equity.



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL



NC Central
UNIVERSITY



FURMAN
UNIVERSITY

CLEMSON
UNIVERSITY



carolinascap.com



c3he-contact@ncsu.edu