



# The Carolinas Collaborative on Climate, Health, and Equity (C3HE)

A NOAA Climate Adaptation Partnerships Team

Kathie Dello, Jennifer Runkle, Louie Rivers, and Kalyn Rosenberg, North Carolina State University



## About C3HE

The Carolinas Collaborative on Climate, Health, and Equity (C3HE) is committed to understanding our changing climate and addressing the impacts in a just and equitable way. We work together with communities across the Carolinas to help predict and understand their exposure and vulnerability to climate threats, such as fire, flood, and heat. By integrating social science, physical science, and regional knowledge, the C3HE team and participating groups co-produce solutions that are tailored to meet unique local needs and priorities.

## Program Aims

- **Aim 0.** Demonstrate our commitment to addressing the climate reality in a just and equitable way, while ensuring the inclusivity and diversity of all voices are represented in every aspect of our work in the Carolinas;
- **Aim 1.** Build and enhance local partnerships in underserved communities across the Carolinas to identify, test, and refine equitable solutions for climate resilience;
- **Aim 2.** Understand and predict how co-occurring and consecutive hazards interact with exposure and vulnerability to shape climate risk;
- **Aim 3.** Identify and connect the complex linkages between structures of power, intersecting social positions, and climate-health inequities in vulnerable communities; and
- **Aim 4.** Design and implement community-sciences programs to track physical and social science metrics and build community-level climate resiliency literacy.

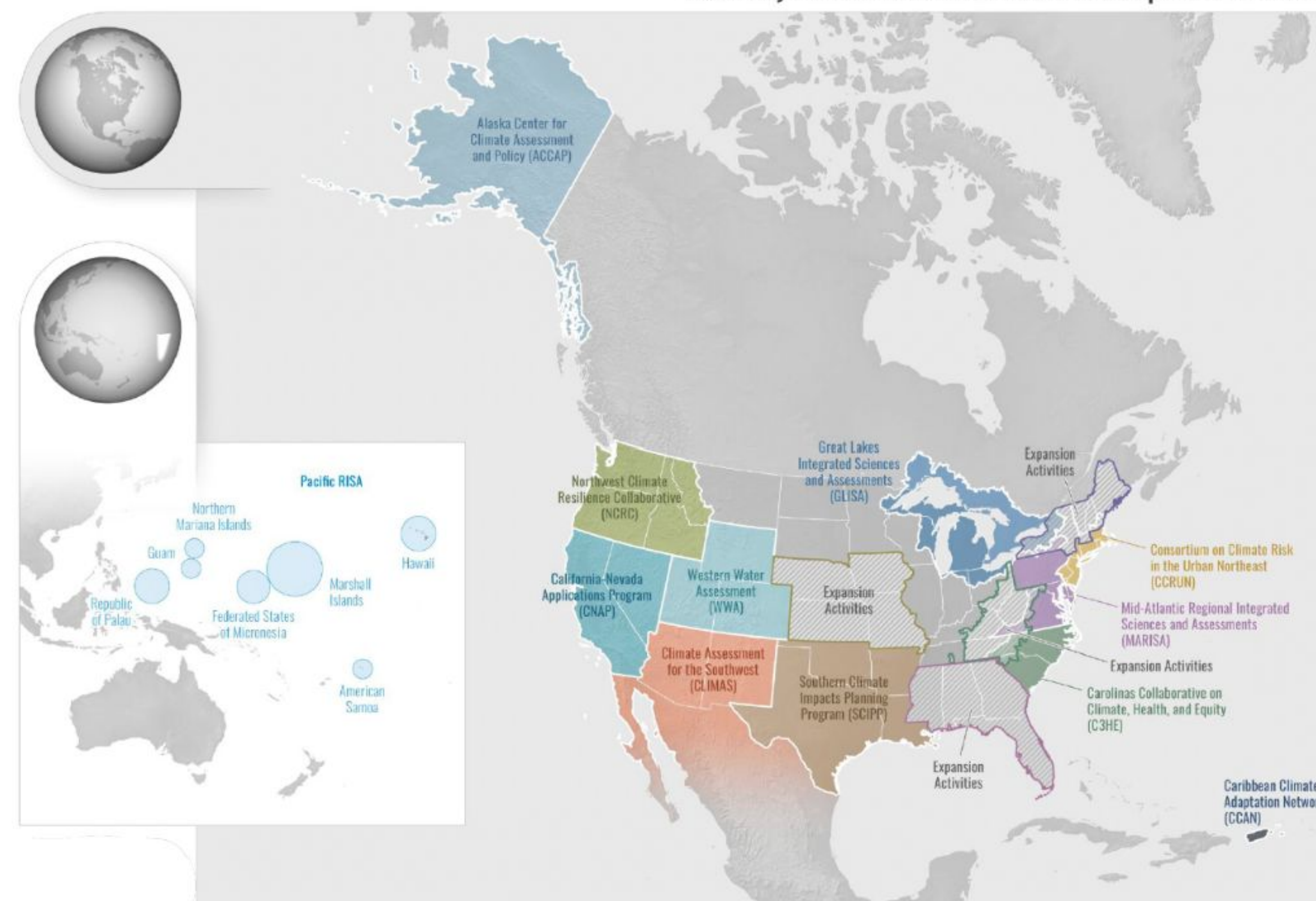
## Our Team

We are a multi-institutional team of physical and social scientists, community leaders, researchers, outreach professionals, and students.

### Leadership:

- Dr. Kathie Dello, Co-lead PI, Director of the North Carolina State Climate Office
- Dr. Louie Rivers, Co-lead PI, Senior Social Science Advisor in the Office of Research & Development at the Environmental Protection Agency
- Dr. Jennifer Runkle, Co-lead PI, Environmental Epidemiologist at the North Carolina Institute of Climate Studies
- Kalyn Rosenberg, Senior Program Manager of C3HE, NCSU

Currently Funded CAP/RISA Teams and Expansion Activities



## About NOAA's CAP Program

NOAA Climate Adaptation Partnerships (CAP) (formally Regional Integrated Sciences and Assessments (RISA)) program is an applied research and engagement program that expands society's regional capacity to adapt to climate impacts in the U.S. Funded by 5-year cooperative agreements with NOAA, the work is accomplished by teams of research institutions, nonprofit organizations, and state/local/Tribal governments in multi-state regions. CAP/RISA teams engage in a variety of applied and co-developed research and engagement with communities. A central tenet of the CAP/RISA program is that learning about climate adaptation and resilience is facilitated by and sustained across a wide range of experts, practitioners, and the public. Learning about and doing adaptation happens within social contexts. As such, the CAP/RISA program supports networks of people working together to plan for and adjust to change using science and local knowledge. The CAP/RISA program supports research projects that address climate-sensitive issues of concern to decision makers and policy planners at a regional level. There are currently 12 active CAP/RISA teams across the country.

## C3HE Community Projects

- Cherokee**: Integrating climate into Tribal Governance with the Eastern Band of Cherokee Indians
- Albemarle Region**: Advancing climate fluency and health equity with the Albemarle Regional Health Services
- Greenville County**: Enhancing coordination between communities and local government to create and implement climate resiliency plans
- Ocracoke**: Assessing the impact of compounding disasters - Hurricane Dorian and the COVID-19 pandemic - to inform future community planning
- Williamsburg**: Identifying the impact of recurrent flooding and hurricanes on critical infrastructure in frontline communities

## Research Highlights

### Climate Change and Onsite Wastewater Treatment Systems in the Coastal Carolinas

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

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-d-21-0192.1>

### Data from the Drain: A Sensor Framework that Captures Multiple Drivers of Chronic Coastal Floods

25% of flooding in Beaufort, NC was driven by land-based sources, illustrating the need to address the multiple compounding sources of flooding.

Gold, A., Anarde, K., Grimley, L., Neve, R., Srebnik, E. R., Thelen, T., et al. (2023). Data from the drain: A sensor framework that captures multiple drivers of chronic coastal floods. *Water Resources Research*, 59, e2022WR032392. <https://doi.org/10.1029/2022WR032392>

### Environmental Justice in Disaster Recovery: Recognition of the Latinx Community by Nonprofit Leaders

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

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>

### Growing Safely or Building Risk? Floodplain Management in North Carolina

In North Carolina, for every property removed through buyouts from 1996 to 2017, more than 10 new residences were built in floodplains.

Hino, M., BenDor, T. K., Branham, J., Kaza, N., Sebastian, A., & Sweeney, S. (2023). Growing Safely or Building Risk? *Journal of the American Planning Association*, 1-13. <https://doi.org/10.1080/01944363.2022.2141821>

