NECASC
Northeast Climate Adaptation Science Center

University of Massachusetts Amherst

2/8/2022

To Representative Grijalva,

Re: Support for *The Climate Adaptation Science Centers Act* (CASC Act)

We write in strong support of *The Climate Adaptation Science Centers Act* (CASC Act). Climate change is the greatest threat facing our natural and cultural resources. Without science to guide adaptation, we will soon see dramatic losses of species, depletion of habitat, and alteration of valuable ecosystem goods and services. As directors of the Northeast Climate Adaptation Science Center (NE CASC), we have observed the creation of cutting-edge climate adaptation science in direct response to the needs of natural and cultural resource managers. The mission of NE CASC is to deliver science to help fish, wildlife, water, land, and people adapt to a changing climate. By formalizing and building on the existing CASC program, the CASC Act will improve the consistency, continuity, and growth of NE CASC for the long term, allowing us to meet the growing needs for high-quality, actionable science and train the next generation of climate adaptation scientists.

Initiated in 2012, NE CASC is a partnership between the U.S. Geological Survey and a consortium of universities. NE CASC is hosted by the University of Massachusetts Amherst, which has a deep commitment to environmental conservation and, as a land-grant university, is well-versed in supporting stakeholder-driven, actionable science. In addition to UMass, our consortium includes Columbia University, Cornell University, the University of Vermont, the U.S. Forest Service's Northern Research Station, and Woodwell Climate Research Center. We also partner closely with the United South and Eastern Tribes (USET).

The CASC Act will support the delivery of climate adaptation science to natural and cultural resource managers. Our research portfolio includes work ranging from coastal resilience to forest adaptation to landscape-scale conservation. Some highlights include:

- Conserving vulnerable species: NE CASC researchers have developed adaptation strategies for species of regional conservation concern and helped to integrate this information into Northeast state wildlife action plans.
- Biological invasion risk and response: NE CASC supports the Northeast Regional Invasive Species & Climate Change (RISCC) Network, which helps over 600 invasive species managers exchange information about emerging invasion risk and best management practices.
- Sea level rise & flooding: NE CASC PIs have developed state of the art sea level rise and flood projections specifically designed for New England's unique coastal setting.

This work is informing Climate Ready Boston, an ongoing initiative to help the city of Boston develop informed and effective plans for climate resilience.

- Black ash conservation: NE CASC researchers have conducted large-scale experiments to identify management strategies that may help preserve black ash-dominated forests. These ecosystems occupy a position of great cultural importance for Tribal Nations across the region and are threatened by the confluence of the invasive emerald ash borer and climate change.
- Rapid heating: A NE CASC study revealed that the coastal Northeast—from Maine to Delaware—is heating faster than most regions of North America. This heating is causing drastic alterations in ocean and atmospheric conditions over the North Atlantic.
- Range-shifting plants: NE CASC research has identified dozens of high-impact invasive plants that are likely to shift into the Northeast with climate change. In partnership with state invasive plant councils, this information is being integrated into decisions about proactively surveying and managing to avert new invasions.
- Tidal wetland resilience: A NE CASC study of Hudson River Estuary marshes demonstrates that many tidal wetlands grew at a rate two to three times faster than sea level rise, suggesting that they should be resilient to accelerated future sea level rise and addressing a global concern that tidal marshes will be drowned by rising seas.
- Winter lake ice: NE CASC recently pioneered a study of winter lake ice loss, examining 275 years of data to show that lakes with the longest winter ice duration will experience the greatest changes in spring and summer ecosystem properties as climate change accelerates.

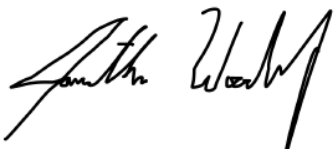
The CASC Act will help us to address unmet demand for climate adaptation science. CASC work focuses on co-produced science, which means we build partnerships between scientists and managers to create high-quality, actionable science. Across the Northeast, there are thousands of natural and cultural resources - from NGOs managing coastal erosion on small properties to states managing wildlife for conservation and recreation to Tribal Nations managing the loss of cultural keystone species to National Parks managing ecosystems for visitors. While many partnerships have been developed, there is much more work to be done. We see a strong need to replicate and deliver existing research to serve new stakeholder groups and new areas. We also see a strong need to build on our research strengths in ways that will provide more options and clarity for management. Lastly, we see a strong need to expand our research into new areas, such as adaptation of natural resources in urban areas to better address the needs of underserved communities. The CASC Act will allow NE CASC to work in a timely and efficient way in providing resources to scientists and practitioners working on emerging priorities.

The CASC Act will expand the scope and extent of our climate adaptation work. Prior to 2021, NE CASC was responsible for serving what has become the current Midwest CASC region and still maintains a legacy consortium covering that larger footprint due to grant cycle limitations. The CASC Act would allow for the addition of new consortium members in the Mid-Atlantic to better serve our newly redefined region. This flexibility will enhance our ability to respond to the needs of our stakeholders across the Northeast.

The CASC Act will build new partnerships with Tribal Nations. Including the voices and knowledge of Tribal partners in climate adaptation and supporting Tribal climate adaptation are key focal areas of NE CASC work. For example, our Tribal Climate Liaison provides climate adaptation planning support to regional Tribes. Additionally, a recently developed partnership between NE CASC and the Native American Program at the University of Maine supports the development of a *Wabanaki Climate Adaptation and Adaptive Management Plan.* This plan will provide a regional blueprint for Tribal adaptation by defining objectives based on Indigenous values. NE CASC science will support the specific climate-related needs of the four principal Tribes of the Wabanaki Confederacy. The CASC Act will provide the stability necessary to build and maintain long-term Tribal partnerships, allowing us to serve a community disproportionately impacted by climate change. Further, the CASC Act will provide the flexibility to engage new Tribal partners so that we can better identify and address Tribal climate adaptation science needs across our region.

The CASC Act will allow us to train the next generation of climate adaptation scientists. A student 'fellows' training program lies at the core of the NE CASC mission. Since its inception, this program has prepared more than 100 graduate students and postdoctoral fellows to become leaders in the field of climate adaptation by building skills in science communication, engagement, and ethical collaboration. Through this training, fellows are immersed in cutting-edge science and partner with natural and cultural resource managers to inform climate change adaptation. Additionally, fellows participate in the important work of making climate adaptation science more diverse, equitable, inclusive, and just. Our work seeks to recruit, include, and support voices from groups underrepresented at all levels of climate adaptation science - including through our fellows program. Upon graduation, NE CASC fellows bring these important skills and knowledge to careers in federal and state agencies, academia, and NGOs, building our workforce capacity in actionable science to support climate adaptation.

The CASC Act will allow NE CASC to nimbly address the needs of natural and cultural resource managers in our region and expand the pool of next-generation, climate adaptation scientists. We strongly support the CASC Act.



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