

Midwest Climate Adaptation Science Center

Delivering science to help fish, wildlife, water, land, and people adapt to a changing climate

Midwest CASC Goals

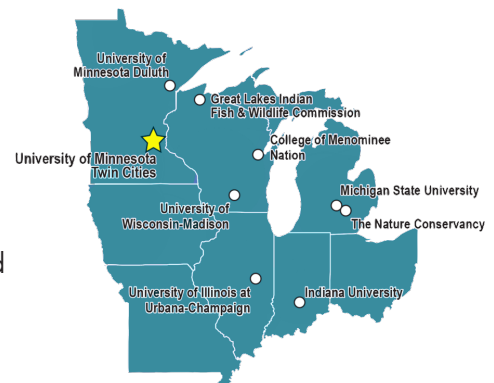
1. Respond to high priority management challenges
2. Foster substantive, sustained engagement between scientists and managers
3. Advance understanding of the impacts of climate change on fish, wildlife, water, land, and people
4. Support science leading to sound resource management and adaptation

Midwest CASC Structure

The Midwest Climate Adaptation Science Center (CASC) is a consortium of research-focused academic, Tribal, and non-profit partners working collaboratively with the United States Geological Survey (USGS).

There are nine regional USGS Climate Adaptation Science Centers and a National CASC office in Reston, VA. The primary components of a regional CASC are:

1. **Host agreement:** a federal grant to a university host, for a term of five years, to provide facilities, partnerships, travel, and supplies; and to support science, educational, outreach, and programmatic capabilities with consortium partners, via sub-awards
2. **Research awards:** funding, awarded by USGS, to consortium members, USGS research centers, or other federal agencies on an annual basis
3. **Federal personnel:** administrative and science services provided by USGS staff



The Midwest CASC is hosted by the University of Minnesota. Consortium members include: University of Wisconsin Madison; Michigan State University; University of Illinois Urbana-Champaign; Indiana University; College of Menominee Nation; Great Lakes Indian Fish and Wildlife Commission; and The Nature Conservancy. Members work with USGS to support graduate fellows and postdocs, conduct synthesis research, host capacity-building workshops, and foster a regional community of researchers and practitioners.

5-Year Strategic Science Plan Priorities

Heavy precipitation events and drought: Heavy precipitation events, flooding, and drought alter the condition, structure, services, and management of natural resources.

Loss of winter: Warming winters, altered snow patterns, and increased variability affect fish and wildlife populations, habitat management, and nature-based recreation.

Altered hydrological regimes: Changes in temperature, flows, and connectivity alter high-value fish populations, at-risk aquatic organisms, and culturally important resources.

Novel terrestrial landscapes: Shifts in vegetation and human responses to climate change alter the suitability of the landscape for priority and at-risk wildlife populations.

Barriers to and opportunities for adaptation: Climate change alters the feasibility of management goals and suitability of management tools.



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Current Midwest CASC-Funded Projects

25 current projects underway ([more at CASCProjects.org](https://www.cascprojects.org)):

- **7 Fisheries:** Recruitment in Lake Michigan, resilience of sport fish in lakes, growth and production for sustainable management, thermal ecology and range decline, stocking supply/demand dynamics, restoration of native coregonine, thermal refugia for brook trout
- **6 Wildlife:** Waterfowl habitats and distributions, climate impacts on butterfly declines, resiliency of winter-adapted species, moose management, wetland connectivity for wildlife and water quality, assisted gene flow in an endangered butterfly population
- **2 Forestry:** Climate adaptation planting to restore and sustain forests, climate driven change in floodplain forests
- **2 Non-Local Beings:** Climate driven impacts of woody non-local beings (“invasives”) on habitat, impacts of forest management on woody non-local beings
- **8 Cultural/Societal Impacts:** Harmful algal blooms, tribal wild rice management, public perceptions and acceptance for climate adaptation, natural solutions to extreme precipitation, regional climate vulnerability tools, climate adaptation framework for National Wildlife Refuge System, climate needs of the Midwest, flood hazards



Midwest CASC Tribal Engagement Overview

The Midwest CASC understands and respects Tribal sovereignty and its responsibilities to the Tribal Nations.

The Midwest CASC currently supports two Tribal Resilience Liaisons, funded by the BIA Tribal Climate Resilience Program and USGS. The Midwest CASC works to make sure Tribal voices and concerns are heard on the Midwest CASC Advisory Committee, Midwest Climate Partner calls, through Tribal members in the CASC consortium, and through various forms of public engagement.

The Midwest CASC is also working on expanding Tribal engagement research as well as training in Tribal collaboration and co-production. A Tribal engagement strategy was started in 2022 to inform future activities. Lastly, the Midwest CASC supported its first Tribal REU (Research Experience for Undergraduates) Summer Program hosted by the College of Menominee Nation in 2022.

Midwest CASC Values

The Midwest CASC’s work and community culture are guided by five core values:

