

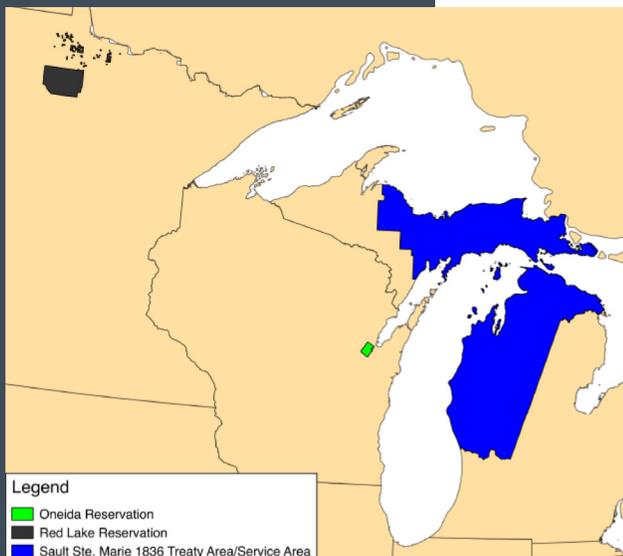
## Overview

- **What are strategic foresight scenarios?:** Co-developed scenarios that combine indigenous knowledge with local climate trends for long-term planning.
- **Partners:** College of Menominee Nation Center for First Americans Forestlands, and U.S. Forest Service.
- **People:** Three Tribes in the Great Lakes region: Sault Ste. Marie Tribe of Chippewa Indians, Red Lake Nation, and Oneida Nation of Wisconsin.
- **Impact:** Tribes are using scenarios to initiate climate change adaptation planning and to seek funding for planning activities. A sustained partnership with the Inter-Tribal Council of Michigan resulted in a Tribal Climate workshop focusing on extreme precipitation events in 2017.

For Indigenous peoples in the Great Lakes region, the potential impacts from climate change extend across social, cultural, and economic resources. As ecological conditions change, culturally significant species are declining and may shift entirely outside of treaty boundaries and reserved lands. For Tribes, it is critical that adaptation planning for co-managed resources respect Tribal sovereignty and protect access to natural resources, while also harnessing Traditional Ecological Knowledge. Uncertainty about how climate change will impact the region at relevant scales makes adaptation planning in this context difficult.

To address these challenges, the Great Lakes Integrated Sciences and Assessments (GLISA) teamed up with the College of Menominee Nation's Center for First Americans Forestland and the U.S. Forest Service to explore using strategic foresight scenarios as an adaptation tool. Foresight scenarios are used to bring long-term perspective to policymaking and planning by outlining a set of possible future scenarios. These scenarios provide a starting point for adaptation work, despite uncertainty around future conditions.

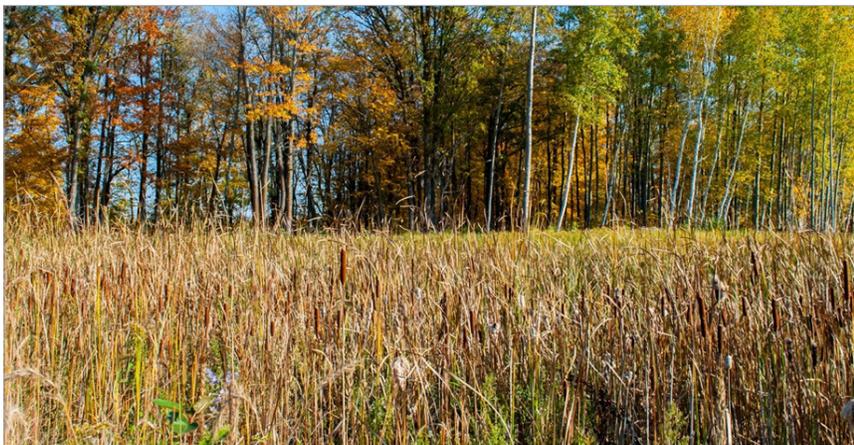
Drawing on existing relationships with Sault Ste. Marie Tribe of Chippewa Indians, Red Lake Nation, and Oneida Tribe of Wisconsin, the team organized a Scenario Planning Workshop to bring together Tribal leaders, community members, and climate specialists. Participants jointly developed scenarios through a collaborative process, combining Indigenous knowledge with GLISA's customized and localized climate impact profiles (which describe historical and projected climate trends). In subsequent meetings, Tribes used these scenarios to frame discussions about where additional capacity will be needed to adapt to future climate conditions. This project was supported by GLISA's small grants program in 2013.



“ The translational tools and skills from GLISA were essential to better connecting climate information to Tribal needs and interests. This model for supporting tribal climate decision-making has extended into our other work and allowed for expanded support for tribes throughout the Northeast Climate Science Center region. ”

– Chris Caldwell, Director, Sustainable Development Institute, College of Menominee Nation

These partnerships have produced valuable outcomes. The scenario workshops provided the participating Tribes with key information that is now used in managing Tribal harvesting activities and to prepare for how climate change may affect Tribal-state-federal-local resource management relationships. Narrative versions of climate scenarios have enabled unconnected institutions and communities within each Tribe to share knowledge and insights through storytelling. Tribal leaders are using these scenarios to initiate new climate change adaptation planning activities and to seek funding for internal and regional adaptation efforts.



A marsh on Red Lake lands. Photo by GLISA climatologist BJ Baule.

*“It’s important that the science get to managers, and this GLISA project showed that we can do that, and it gave a pathway forward. So your scientists were helping us create these local climate reports essentially – more than downscaled.”*

– Chris Caldwell, Director, Sustainable Development Institute, College of Menominee Nation

## About GLISA Advancing Climate Knowledge for Adaptation and Resilience with Great Lakes Communities

Established in 2010, GLISA is a collaboration between the University of Michigan and Michigan State University, supported by the National Oceanic and Atmospheric Administration (NOAA). As one of 11 NOAA Regional Integrated Sciences and Assessments (RISA) teams, GLISA works at the boundary between climate science and decision-makers, striving to enhance Great Lakes communities’ capacity to understand, plan for, and respond to climate impacts now and in the future. Our team of social and physical scientists collaborates to:

- Develop usable climate information tailored to stakeholder needs;
- Develop, implement, and evaluate resources and tools to apply climate information to decision-making;
- Facilitate collaborative activities, education, and training and support stakeholder networks; and,
- Investigate emerging climate issues and synthesize findings for practitioners.



### Great Lakes Integrated Sciences + Assessments (GLISA)

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Example of GLISA’s boundary chain model of stakeholder engagement for the Great Lakes Climate Adaptation Network (GLCAN). Climate information is tailored and moves through different boundary organizations (links in the chain) to connect science to users. Adapted from Lemos et al. 2014.