

GLISA Program Overview

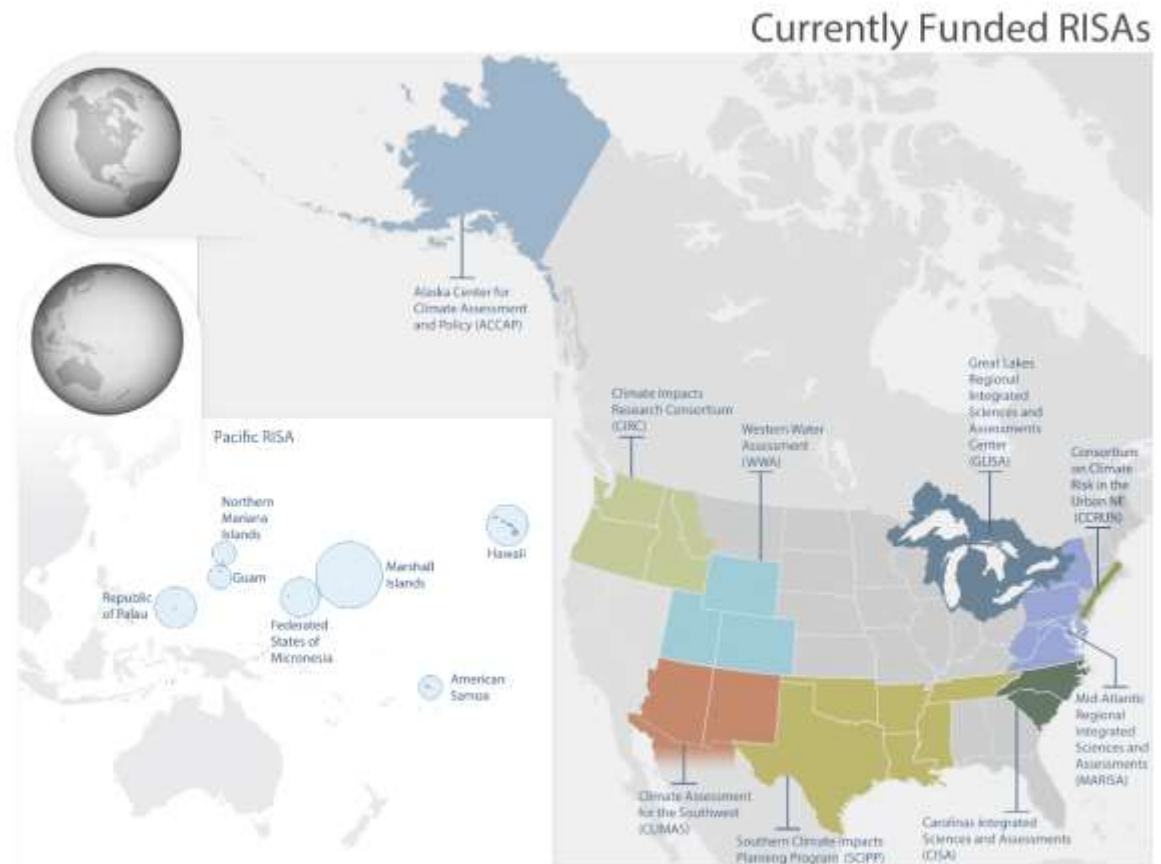
Establishing a Regional Climate
Collaborative for the Essex Region

December 5, 2018

Jenna Jorns, Program Manager

Regional Integrated Sciences & Assessments (RISA)

The RISA program supports regional research teams that help expand and build the nation's capacity to prepare for and adapt to climate variability and change.



About GLISA

- Great Lakes Integrated Sciences and Assessments
 - One of NOAA's 11 RISAs
 - Established in 2009
 - 8 Great Lakes states and Ontario – *only international team!*
- Collaboration between University of Michigan and Michigan State University



Center for Global Change &
Earth Observations (CGCEO)

GLISA Team

Co-Directors

- Maria Carmen Lemos, UM
- Jeff Andresen, MSU

Core Faculty

- Ricky Rood, UM
- Ken Frank, MSU

Staff

- Jenna Jorns, Program Manager
- Laura Briley, Climatologist
- Omar Gates, Climatologist
- Kimberly Channell, Climatologist

Researchers

- Frank Marsik, UM Research Scientist
- Katherine Browne, UM Graduate Student
- William Baule, MSU Graduate Student
- Tingquiao Chen, MSU Graduate Student
- Applied Climate Program masters students, UM



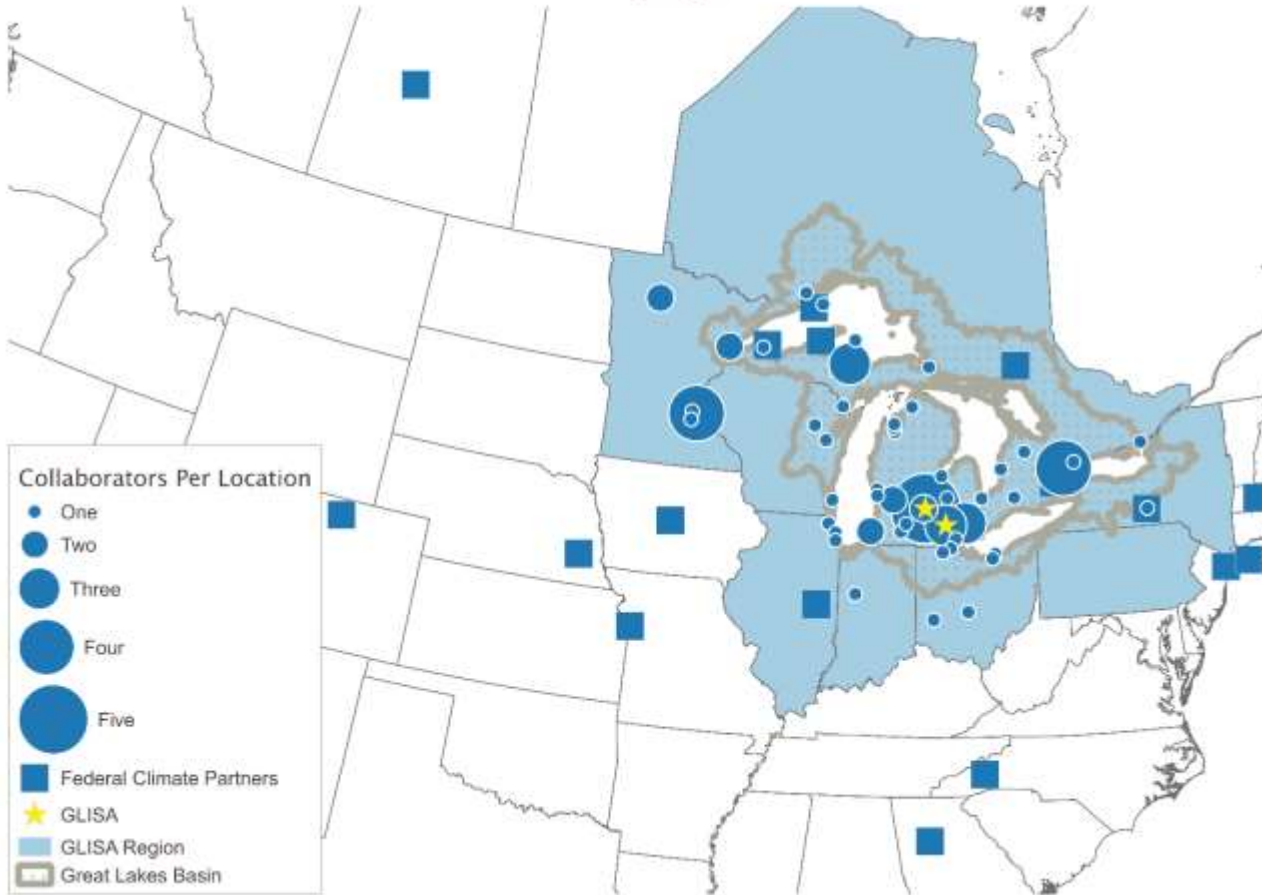
Approach



- Interpret *existing* information and data for stakeholders
- Provide locally relevant synthesis:
 - What has happened?
 - What will happen?
 - What are the impacts?

Regional Engagement

GLISA Engagements



Canadian Partners



Great Lakes Water Quality Agreement Annex 9
Subcommittee on Climate Change Impacts



Role in the Region

- Provide customized climate resources
- Conduct applied research
- Contribute to U.S. National Climate Assessment
- Peer network engagements
- Convener – Great Lakes Adaptation Forum

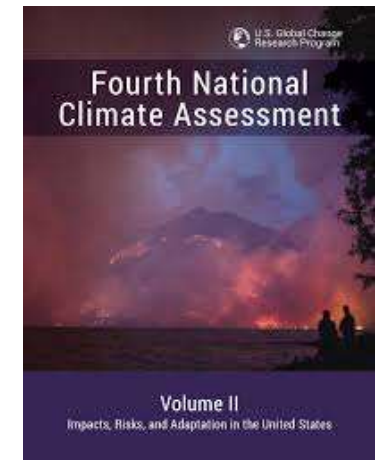
21 Midwest



Key Message 6

Community Vulnerability and Adaptation

At-risk communities in the Midwest are becoming more vulnerable to climate change impacts such as flooding, drought, and increases in urban heat islands. Tribal nations are especially vulnerable because of their reliance on threatened natural resources for their cultural, subsistence, and economic needs. Integrating climate adaptation into planning processes offers an opportunity to better manage climate risks now. Developing knowledge for decision-making in cooperation with vulnerable communities and tribal nations will help to build adaptive capacity and increase resilience.



PROJECTS OF INTEREST

Cities

- Co-produce climate information to inform decision making and mainstream city-level adaptation planning
- Example projects and partnerships:
 - Great Lakes Adaptation Assessment for Cities (GLAA-C)
 - Customized city climatologies and fact sheets
 - Vulnerability assessment template with Huron River Watershed Council
 - Great Lakes Climate Adaptation Network (GLCAN)



Tribes

- Co-produce climate information to complement Traditional Ecological Knowledge
- Continuing to nurture the relationships with Tribes and Tribal organizations
 - Inter-Tribal Council of Michigan
 - Lac du Flambeau Band of Lake Superior Chippewa
 - Bad River Band of Lake Superior Chippewa
 - The College of Menominee Nation
 - 1854 Treaty Authority



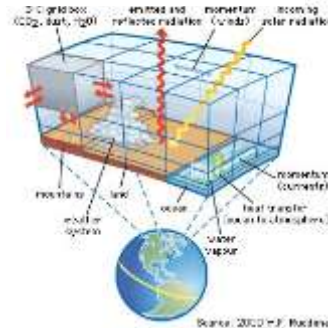
Lac du Flambeau Tribe
LAC DU FLAMBEAU BAND OF LAKE SUPERIOR CHIPPEWA INDIANS



Great Lakes Ensemble

- The Ensemble project is:
 - An evaluation of climate models based on regionally important measures (lake-effect processes)
 - Expert climate data guidance and synthesis
 - Co-production of climate information that meets practitioner needs
- Motivation
 - Half of practitioners surveyed indicated their climate information needs are not being met
 - Most indicated climate models and data need more user guidance
- Goal to provide highest quality climate information for our region in a way that is valuable to end-users

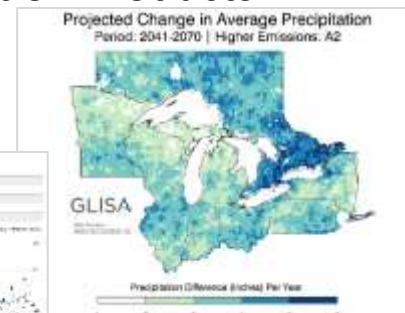
Stakeholder Working Group
Science Advisory Panel



GLISA
A NOAA RISA TEAM



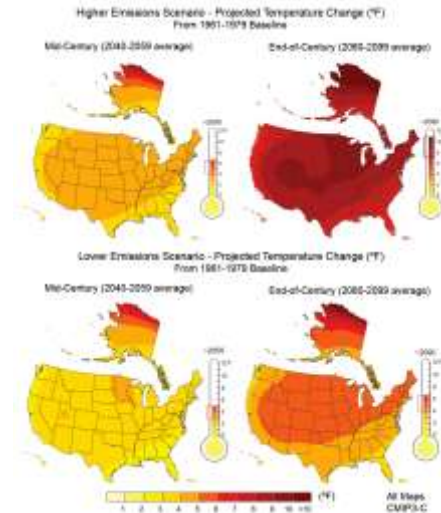
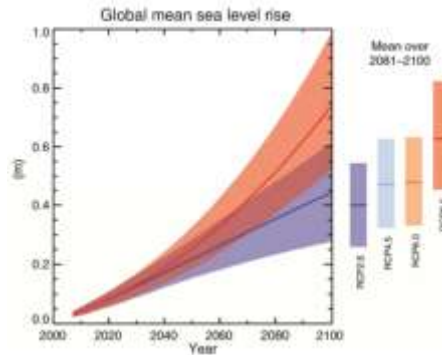
New Climate Information Products



Scenario Planning

- A climate scenario is a description of possible future climate conditions used to explore potential impacts on people, resources, and the environment

	SCENARIO 1 Rather Hot	SCENARIO 2 Awfully Dry	SCENARIO 3 Wet in Bursts	SCENARIO 4 The Jungle
Temperature	↑	↑	↑	↑
Last spring freeze date	↔	↑	↔	↑
April-June precipitation	↔	↓	↑	↑
Spring-Summer soil moisture	↔	↓	↑	↑
One-day heavy rain events	↑	↔	↑	↑
Five-day heavy rain events	↔	↓	↑	↑



- Scenarios can be qualitative and/or quantitative in nature
- Scenario details should address the concerns of the practitioner
- GLISA's scenarios are a mix of climate (longer-term) and weather (short-term) events presented in a timeline format for the future. We build quantitative (model-based) and qualitative (experienced-based) information into the scenarios.

Scenario Planning

- Example projects:
- U.S. National Park Service (Isle Royale & Apostle Islands Nat'l Lakeshore): Scenarios for Park Management
- Fort Custer: Scenarios for Natural Resources Management
- Inter-Tribal Council of Michigan: Extreme Precipitation Scenarios
- New York Sea Grant: Scenarios for Lake Ontario & surrounding communities

Resource	Least Change	Summer Drought, Wind, and Fire	Warmer than Duluth	Isle Savanna
Wolf	↓	↔	↓	↓
Moose	↔	↑ then ↓	↓	↓
Boreal Forest	↓	↓	↓	↓
Temperate Forest	↑	↑	↑	↓
Savanna	NA*	NA	NA	↑



Thank you!

For more information:

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Visit: glisa.umich.edu