



People on the Move in a Changing Climate

GREAT LAKES REGIONAL WORKSHOP SYNTHESIS

June 2022



PEOPLE
ON THE
MOVE IN A
CHANGING
CLIMATE



Background

With the increasing effects of climate change, its impact on people and how they will move in response to changes is of increasing concern and importance. However, little is known about the potential patterns of human mobility and how this will impact sending and receiving communities. People on the Move in a Changing Climate (PEMOCC) is a Sea Grant led group funded by the National Science Foundation to assess the existing knowledge around climate driven human mobility, convene interested parties, and identify research, data, education and policy needs regionally and nationally.

The Great Lakes PEMOCC workshop was one of five regional workshops to understand specific concerns. It was hosted by New York Sea Grant in Buffalo, NY in June 2022. Attendees represented every Great Lakes state and included policy makers, city planners, academic experts, and educators.

In the following pages, we outlined a summary of the keynote speaker and panel sessions with key insights highlighted. The purpose is to briefly summarize needs, knowledge gaps and takeaway actions related to human mobility in the Great Lakes region in the face of climate change and weather hazards.

Briefer Authors:

Based on original workshop report: Bunting-Howarth, K., Harder, A., Drag, N., Carlton, S., Chin, N., Fussell, K., and Rafferty, S. 2023. People on the Move in a Changing Climate Great Lakes Workshop Report. 1-3 June 2022.

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Karina Alvarez

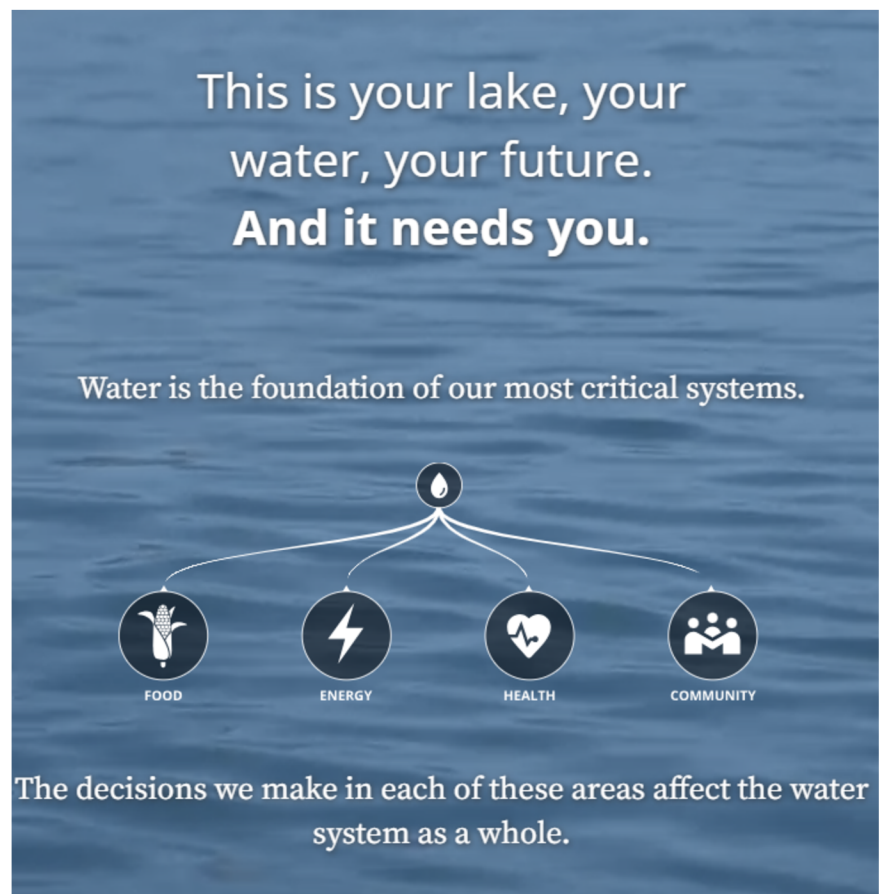
*This layout was created
using a template generated
by USC Sea Grant.*

Rachel Havrelock, University of Illinois at Chicago

Summary

Climate driven changes to freshwater hydrology will influence human mobility across the planet. Demand for freshwater may drive an influx of people to the Great Lakes, which could help initiate more economic development. Even with an abundance of freshwater, there are still issues with access that need to be addressed. Here are some key insights from Rachel Havrelock:

- Freshwater resources should not be privatized
- Revenue from large companies profiting from the bottling and sale of freshwater should be reclaimed
- We should prioritize wastewater treatment reuse and reduce surface water runoff
- Our ability to manage water will be critical in the future to retaining and assisting incoming residents



The figure above is part of an online tool called Freshwater Stories developed by Havrelock that highlights pressing water issues in Lake Michigan (<https://freshwaterstories.com/>).

Isaac Gendler, California Public Utilities Commission

Ross Plattel, University of Calgary

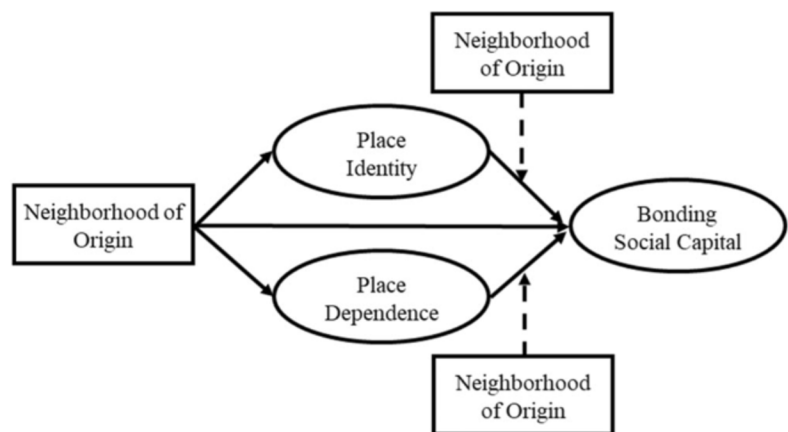
Sherri Brokopp-Binder, Brokopp-Binder Research and Consulting

Jennifer Hinojosa, Hunter College

Key Insights

- **Climate assessments and existing housing and economic data can be utilized to estimate which cities have the ability to accept more residents as a result of climate change.** A study in New York analyzed cities with rising population trends and categorized them with regard to climate risk level, economic opportunity, or draws to the area. This may help city planners prepare for greater influxes in the future.
- **Decision making regarding relocation is multifaceted** and is influenced by local norms, hazard history, and by a sense of attachment to place. Case-studies of buyout programs after Hurricane Sandy identified that the decision to move was influenced by both community- and individual-level factors, with some communities choosing to stay and others accepting buyouts.
- **Buyout programs lead to a loss of social capital and difficulties establishing new connections after moving.** Homeowners that moved following Hurricane Sandy often experienced years-long processes and ultimately buyout programs may lead to social disruption and stress.
- **In the aftermath of Hurricane Maria, out-migration from Puerto Rico increased to the Great Lakes region.** Major damages to homes, power supply, and crop production following the storm caused many people to move to Florida and NY, especially Buffalo and Rochester.

The figure (right) is a graphical model developed by Binder et al. (2022) that was used to visualize the factors that may have contributed to decision making after Hurricane Sandy.



Jerel Ezell, Center for Cultural Humility and Cornell Medicine

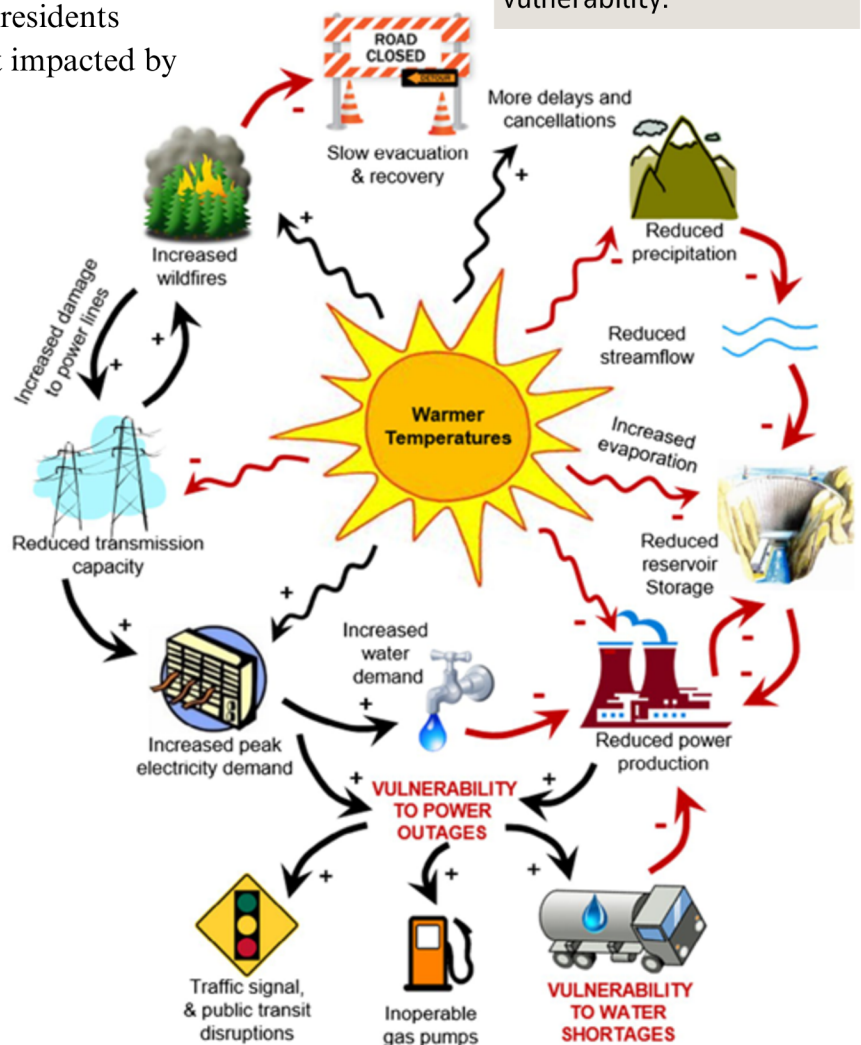
Susan Spierre Clark, University of Buffalo

Kelly Leilani Main, Buy-In Community Planning

Key Insights

- **“Environmental health capital” is an environmental justice concept that explores the components of knowledge, resources, and political visibility that communities need to prevent prolonged harm from environmental hazards.** Many communities, such as Flint, MI that experienced the high lead levels in drinking water, have experienced austerity measures that directly affect people's health with a lack of resources to address these issues.
- **Populations most vulnerable to extreme heat live in cities, have lower-economic status and lack of transportation.** A study in western New York found that residents concentrated in Buffalo, NY were most impacted by excessive heat days.
- **Power outages are more disrupting and cause increased negative impacts for households with disabilities or young children.** Lack of reliable infrastructure can cause mental and physically damaging impacts on residents, especially during times of extreme heat or cold.
- **Climate change will exacerbate existing trends of inequality.** For example, redlined areas have an average of 25% increased risk of flooding but 52% less wealth than non-redlined areas. People located in areas with increased climate risks are often least likely to have resources to move away or relocate after sudden extreme weather events or long-term climate stressors.

(Clark et al. 2019) factors leading to infrastructure vulnerability.



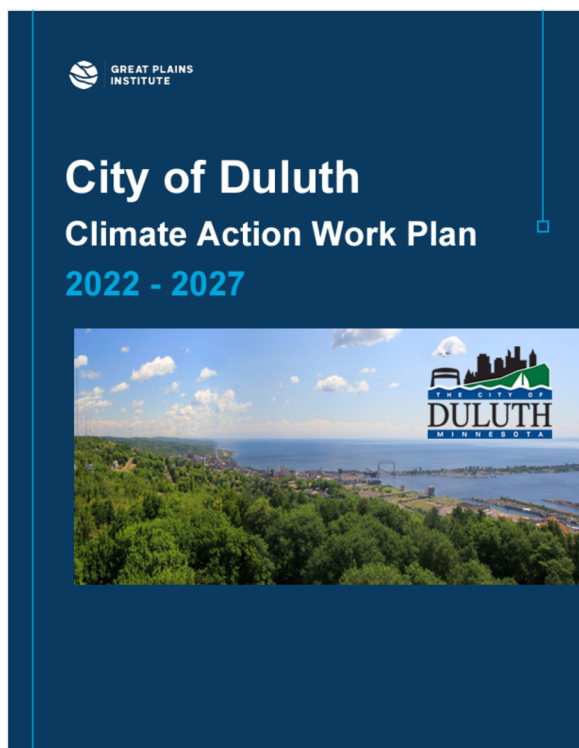
Mindy Granley, City of Duluth

Missy Stults, City of Ann Arbor

Ty Warner, Northern Indiana Regional Planning Commission

Key Insights

- **In order to plan for an influx of people, cities need data that estimates timing and magnitude of population changes.** Cities like Ann Arbor, MI are well positioned to incorporate planning for climate change as a result of increased precipitation. However, they need tools, data and policy examples to respond to capacity and infrastructure needs.
- **Regional coordination networks can be tools to leverage federal funding.** Metropolitan Planning Organizations, which are required in cities over 50,000 residents, can be utilized to coordinate population changes. Regional coordination from a planning commission allowed for accommodations near a military base in Indiana after a large influx of residents. Guided planning can prevent sprawl and suburbanization that tends to expand quickly as an area grows.



- **Duluth, MN has been described as a potential receiving community and is working towards adaptation to future climate change.** The city developed a Climate Action Work Plan that facilitated the development of shovel-ready projects and identified barriers to adaptation in the local government.

Beth Gibbons, American Society of Adaptation Professionals

Dan Walsh, East Middle School, Erie PA

Kristen Olsen, Wisconsin Department of Children and Families

Annabelle Wilkinson, City of Grand Rapids, MI

Don Zelazny, New York Department of Environmental Conservation

Key Insights

- **Climate justice should be at the forefront of migration assistance.** People who are experiencing effects of climate change on their communities should be leading the narrative and be allowed and/or empowered to take part in co-producing knowledge or research outputs.
- **Students and families that move to a new area may experience cultural barriers and limited resources to access support.** Erie, PA has begun providing incoming students who are English learners with additional support for reaching full academic potential. The school relies on external organizations and partnerships for supporting this program.
- **Refugees from other countries often experience limited resources when they arrive in the United States.** Many are often placed in cities with little advance warning while they are waiting for federal resettlement approval. Cultural barriers, lack of affordable housing, and social isolation all negatively impact incoming refugees. It is critical that climate change migration planning consider immigration from outside the United States.
- **Cities named as “climate havens,” are often struggling with affordable housing, gentrification, and a disproportionate cost burden on black residents.** For example, Grand Rapids, MI has seen housing costs soar; however, they are simultaneously receiving funding to become more welcoming to migrants. Current infrastructure and affordability needs to be addressed to move forward with equity.
- **Water and natural resources agreements should include future scenarios for population changes.** The Great Lakes- St. Lawrence River Basin water resources agreements in the early 2000's were developed to guide resource protection and management strategies. They ultimately determined that control of water should be maintained by Great Lakes communities while preparing for future fluctuations to maintain water conservation.

Needs Identification

In this section, we summarize the **RESEARCH**, **POLICY**, **EXTENSION AND EDUCATION** needs, and **PRIORITY ACTIONS** identified during the workshop breakout sessions.

RESEARCH NEEDS:

- 1** To understand specific impacts of climate driven mobility on municipalities, research that is general or theoretical cannot be used in policy decision making
- 2** Community driven research developed from two-way conversations
- 3** Research should be applicable and developed/maintained through long-term relationship building

POLICY NEEDS

- 1** Policies that secure the provision of affordable housing and prevent speculative development that contributes to rising housing costs
- 2** Land use policies should support the creation of community land trusts that keep resources within the community and promote the diversification of land ownership

EXTENSION AND EDUCATION NEEDS

- 1** Clear definitions to effectively communicate about climate migration
- 2** Midwest or Great Lakes region climate migration network to foster partnerships
- 3** Historical and international case studies of human mobility
- 4** Fellowship model that matches new professionals with communities in need of technical support

Next Steps and Conclusion

PRIORITY ACTIONS:

- National-level Climate Policy (shared definitions) AND Include climate-induced migration in the definition of a refugee
- Center for advising communities on how to improve building codes, ordinances, and zoning related to climate migration
- Regional Policy (e.g. great lakes region working together, state coordination)
- One-stop-shop for innovative climate migration policy
- Data, modeling, and scenarios for planning with information on how many people to expect and city capacities to help inform them
- Need to change cost and benefit calculations in FEMA BRIC
- Policy on Resilience Hubs (USDN and private support)
- Preparedness plans in communities for accepting incoming people during emergency events (e.g. Puerto Ricans that came to Buffalo)
- Synthesis of all federal funding opportunities that can be accessed by communities for climate migration

Themes from breakout sessions and panels reiterated the need for a shared repository for terminology and synthesized data related to human mobility, regulation at the state and local level to address movement, and an ethical communications framework. Next steps identified included continued collaboration and information sharing. Regardless of the unknowns outlined from the workshop, attendees reiterated the importance of transdisciplinary proactive planning to reduce the risk of unforeseen burdens on already vulnerable populations. Equity in planning should be at the forefront of future efforts and the goal of information synthesis at this workshop is to begin the information gathering and connection process for the Great Lakes region.



Acknowledgments

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Cover image and banner image of sand used throughout the report by Karina Alvarez.

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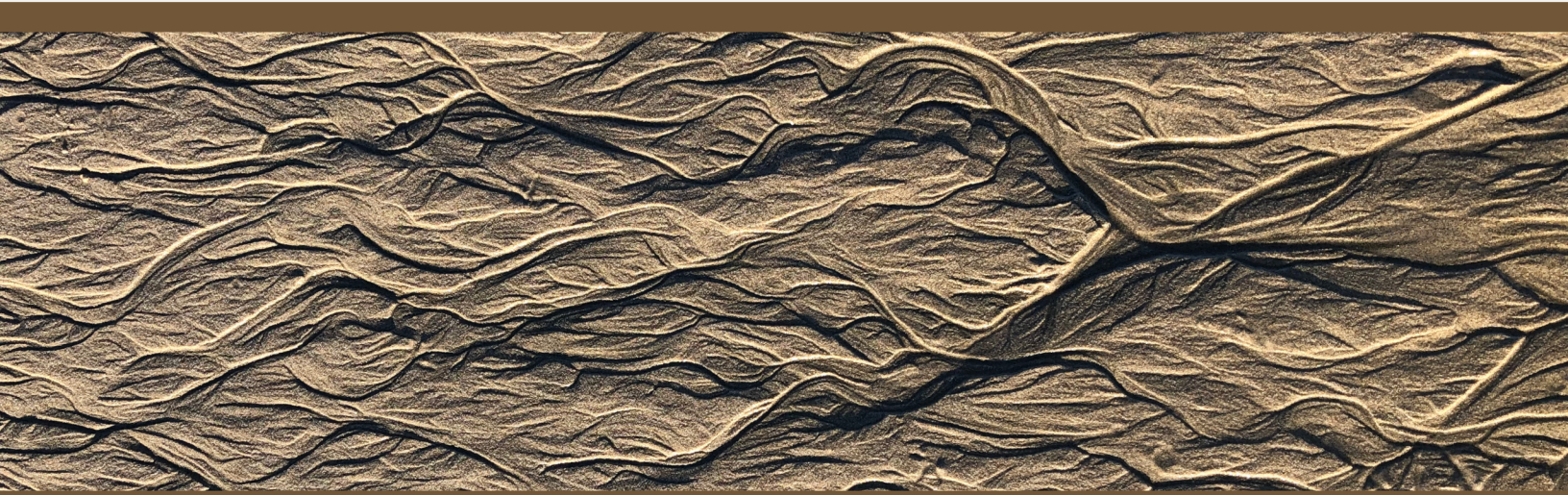
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Sea Grant



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