

Great Lakes Adaptation Assessment for Cities Summer 2013 Update

GLAA-C Climate Change Adaptation Workshops

Throughout the Spring and Summer of 2013 GLAA-C staff and students worked collaboratively with cities throughout the Great Lakes region to deliver customized climate change adaptation workshops. The goals of these workshops are to provide city staff, elected officials, and key stakeholders insights on regionally significant current and anticipated changes in climate and a better understanding of how impacts from these changes will affect operations and services of the municipal government and its partners.

Just as each city is unique and dynamic, the format of the workshops and outcomes were as well. Below is a summary of each workshop including the themes, goals, and outcomes as well as links to additional reports and resources developed by GLAA-C and other partners to bolster each city's adaptation efforts.

Minneapolis Vulnerability Workshop | May 21, 2013

Workshop Goals: Begin identifying highest priority community vulnerabilities; establish process to achieve group consensus on the areas in greatest need of action; and continue building community support and cohesion for climate adaptation efforts.

Saint Paul Resilience Workshop | May 23, 2013

Workshop Goals: Begin creating/refining a vision for a resilient Saint Paul; establish group consensus on the areas of greatest importance to the community; and continue building community support and cohesion for climate resilience efforts.

Dayton Climate Change Adaptation and Resiliency Workshop | June 5, 2013

Workshop Goals: Identify what a changing climate means for City of Dayton officials and staff, and how the City as a whole and as individual departments can take steps to build and maintain an economically vibrant and resilient community.

Toledo - Coastal Climate Adaptation and Resilience Workshop: Supporting climate and coastal resilience planning in the Western Lake Erie Basin | June 19-20, 2013

Workshop Goals: Introduce potential climate change related impacts and opportunities facing the Western Lake Erie; create a forum for stakeholders across various sectors to network and learn about historical and anticipated changes, ongoing adaptation efforts, and potential strategies to prepare for climate change impacts on their sector.

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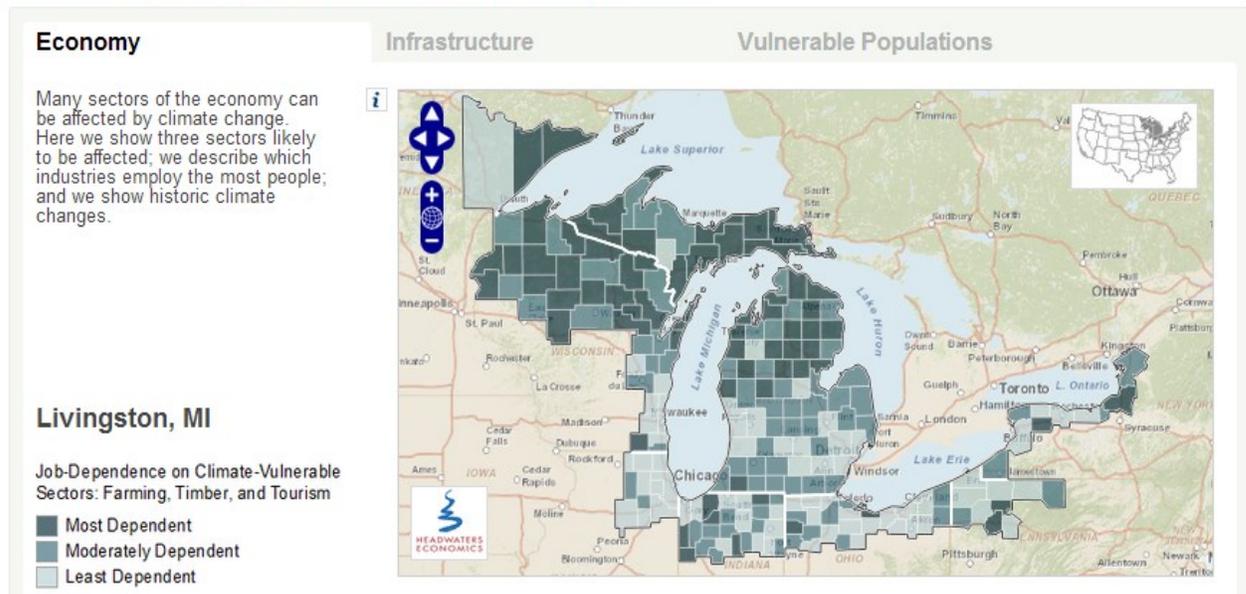
Socioeconomics and Climate Change in the Great Lakes Region

In August 2013, The Great Lakes Adaptation Assessment for Cities (GLAA-C) and Headwaters Economics announced the release of the collaboratively built Socioeconomics and Climate Change in the Great Lakes Region Interactive Map! This web-based, interactive map features statistical information on more than 225 counties throughout the Great Lakes region. The tool displays data at the county scale on social, economic, and demographic information, as well as municipal spending, land-use change, and climate change characteristics. The information is presented through three themes, each featuring a map and three charts all which help the user see how changes in climate change interact with social, economic, and land-use changes across the region.

Mapping Demographics and Climate Change

Socioeconomics and Climate Change in the Great Lakes Region

This interactive shows how the social and economic characteristics of the Great Lakes Region are impacted by regionally specific changes in climate. It was developed in partnership with the Great Lakes Adaptation Assessment for Cities at the University of Michigan.



Following GLAA-C's, *Forwarding Adaptation in the Great Lakes Region Workshop* last November, staff from GLAA-C and Headwaters Economics began working together to identify how Headwaters Economics' Economic Profile System – Human Dimensions Toolkit could be paired with historical climate change data to help local and regional decision makers better understand and integrate climate change into their policies and planning.

The development of the three themes (economy, infrastructure, and vulnerable populations) and accompanying charts followed a full-day Design Charette held in Ann Arbor, MI in Spring 2013. This Design Charette brought together stakeholders from the State of Michigan's Community Health Department, the City of Ann Arbor, the City of Toledo, University of Michigan faculty members from urban planning, public health, and natural resources and environment, and staff from GLAA-C, GLISA, and the Graham Sustainability Institute. Two staff members from Headwaters Economics facilitated the day, and in the end the themes, sub-charts, and necessary data-sets were decided upon and a draft vision for the tool was born. Over the next three months Headwaters Economics

staff worked on an aggressive timeline to provide the design team drafts of the developing tool, and in early June released the beta-version of the interactive map. Throughout the process members of the design team provided feedback on how the maps display the chosen data sets and improve the usability of the information for release to the public.

The final product is now accessible from both the Headwaters Economics' website at headwaterseconomics.org/interactive/great-lakes-atlas and GLAA-C's website at Graham.umich.edu/glaac/great-lakes-atlas. The Interactive itself is supplemented by a Methods and Resources Document which a user can explore to learn more about how information displayed in each theme is related and where to go to learn more about climate change in our region.

This collaborative effort was made possible by the support of the Kresge Foundation. The Kresge Foundation supports the work of both GLAA-C and Headwaters Economics' and was instrumental in encouraging the development of this tool as a resource for local, regional, and state decision makers across the Great Lakes region.

Canadian Census Data Released to GLAA-C

Canadian Census data is famously detailed but notoriously difficult to obtain. This has long hindered US international research, and is especially frustrating when studying our near neighbors like Vancouver or Toronto. But some of that is about to change. Led by GLAA-C faculty Larissa Larsen and research assistant Evan Mallen, the University of Michigan is now one of only four U.S. institutions which hold a subscription to the Canadian Socio-Economic Information Management System (CANSIM). CANSIM is Statistics Canada's key socioeconomic database. Updated daily, this database provides fast and easy access to a large range of the latest statistics available in Canada. CANSIM comprises over 40 million time series and thousands of tables with detailed data from 1961 through the latest census in 2011.

Access to this information will lead to new research opportunities, particularly in cross-cutting policy studies between Canada and the United States. The GLAA-C team hopes to leverage this data to expand the Socioeconomics and Climate Change in the Great Lakes Region Interactive Map to include data for the Province of Ontario, and possibly beyond. Access to this data will also play a key role in ongoing research and technical support being provided to the cities of Kingston and Thunder Bay, Ontario through the GLAA-C project.

Adaptive Capacity in Four Ohio Cities | University of Michigan Students Applied Research Program

In the summer of 2012, four Ohio cities accepted invitations to participate in an interdisciplinary research project conducted by master's degree students in the University of Michigan School of Natural Resources and Environment. This project was a continuation of research on climate adaptation which began in 2011 and focused on two Michigan cities. To better understand how the Great Lakes region can adapt to climatic impacts, an Integrated Assessment (IA) of adaptive capacity in the cities of Avon Lake, Dayton, Elyria, and Toledo was conducted. This assessment included an analysis of the various capitals, capacities and constraints to respond to climatic impacts.

To support the IA, a total of sixty-two interviews with city decision-makers were conducted between August and November 2012. In interviews, participants were asked scripted questions, designed to elicit responses elucidating each city's ability to cope and adapt to climate change. Using qualitative data coding software, the data from interviews was organized and analyzed to identify leverage points, synergistic projects, and partnerships. The adaptive capacity wheel (Gupta et al., 2010) was utilized to identify current institutional strengths and weaknesses constraining potential adaptation activities. By bringing together mixed methods and analytical frames, the assessment sought to provide decision-makers and stakeholders in participating cities with information and tools necessary to better adapt to climate change while also recognizing the current successes and strengths of each city.

Adaption Database Summary | Adaptation by Stealth

In the spring of 2013, GLAA-C staff and research assistants began work collecting examples of adaptation from municipal plans across the US and Canada. This effort involved reviewing a variety of plans, ranging from climate action plans and sustainability plans, to non-climate or sustainability plans, such as emergency management plans, natural system plans, stormwater plans, and others. The goal of this research was and continues to be, to identify if adaptation is taking place within city departments without being called out explicitly as ‘adaptation actions’. This effort is driven by an interest in identifying a variety of actions from diverse places and a desire to study individual departmental plans in order to see how experts in each field are integrating adaptation into their work.

In total researchers reviewed 47 plans in 20 cities and identified 325 unique adaptation actions within these plans. For each adaptation action noted the database includes the climate driver and climate impact; primary department responsible for the action and secondary departments, including external stakeholder groups; co-benefits; and wherever possible we timing, meaning whether or action was complete, in-process, or not-started. In order to categorize the collected actions, a codebook based on similar categorizations available through the Intergovernmental Panel on Climate Change (IPCC), NOAA, and ICLEI- USA was developed.

After collecting these adaptation actions the lead actor in each case was identified (based on department and secondary departments) and a system of categorization for each of the 325 actions was developed. One of the research goals, identifying diversity in actors, became immediately apparent. Analysis of the actions revealed adaptation actions being assigned to departments from A to Z across municipal organizations. Over two dozen city departments are represented, including unlikely suspects, such as aviation, buildings code and permitting, finance department, forestry and parks, and utilities department. Less surprisingly sustainability, environmental, and energy departments took the lead on a number of initiatives.

The database was also sorted using categories recently developed by ICLEI-Canada during a review of their own member cities’ adaptation planning initiatives, and reviewed by outside sources at NOAA, and University of Michigan faculty. We have five discreet categories and mixed strategies.

What we found when we sorted these actions by those six categories, is that there is a clear diversity in practitioners needs and interests; and while research and information are important to city practitioners, believing that increasing knowledge alone is not sufficient. We can see that action is already intended.

Examples from the database of each of these categories and number of strategies falling into each:

Infrastructure Upgrade - (Sewer upgrades, expanding urban forest using climate resilient tree species)	90
Planning process, Programs, and Services - (Open libraries as cooling shelters, create an urban forestry management plan)	72
New Standard or Bylaw - (Revising building codes to include green infrastructure standards)	50
New Information Generation/Research - (Development of new FEMA floodplain maps)	34
External Outreach and Education (Modify business outreach programs to include information on reducing climate change risks)	23
Capacity Building for Staff/Education - (Training staff on heat warning response)	6
Multiple Strategies – Strategies that reflect a mix of the two to three of the above categorizations.	48

Now we are faced with a question: if city practitioners are developing plans, which include adaptation strategies and they are passing these plans, why are we still not seeing implementation of actions? Part of the answer is a next step for GLAA-C's research, which includes diving deeper with each of these 20 cities to track these actions and see if there is more implementation which was not readily apparent. However, as field researchers and adaptation practitioners we need to think about what it means to see strategies in plans, across departments, and yet not see those plans implemented.

Access to the GLAA-C Adaptation Database is available by contacting Beth Gibbons and the Database will be available to access via the GLAA-C website in late Fall 2013.

Upcoming Workshops and Collaborations

Ann Arbor, MI | September 24, 2013

In the Fall 2013, working in collaboration with The City of Ann Arbor and the Huron River Watershed Council, GLAA-C is scheduled to deliver a climate change adaptation workshop for City staff and key stakeholders. The goals of the workshop are expand staff knowledge and mutual understanding of known climate changes and model predictions; Identification of climate changes likely to impact service delivery to residents; fostering interdisciplinary discussions of how this set of climate changes are likely to affect city assets and systems.

Preparing Stormwater Systems for Climate Change Workshop in Monroe, MI October 10, 2013

This workshop will feature an overview of existing and anticipated climate changes for the Great Lakes region; how engineers are responding to these changes; and highlights of the most innovative green infrastructure tools and best management practices from cities across the region. Additional break-out sessions will include panel discussions on innovative financing for stormwater upgrades and improvements; how to leverage regulations to incentivize action; and how to mainstream stormwater management approaches into everyday functions. This workshop is a collaboration between Michigan SeaGrant, Old Woman Creek National Estuarine Research and Resources, and GLAA-C.

Kingston, ON | Winter, 2013/2014

In coordination with the City of Kingston's Climate Change Action Plan Initiative launch, GLAA-C will participate in a half-day workshop with City staff. The goals of this workshop will be to build staff knowledge of expected climate impacts, especially to city-owned or managed systems; begin discussing strategies to help the city reduce vulnerability to projected changes; identify implementation strategies to forward the goals and objectives of Kingston's Climate Change Action Plan.

GLAA-C Background

Through the support of the Kresge Foundation, and in collaboration with Great Lakes Integrated Sciences + Assessments (GLISA), the goal of GLAA-C is to bring together researchers and practitioners to develop actionable climate adaptation programs for cities in the Great Lakes Region. The work of GLAA-C is supported by six University of Michigan faculty members whose backgrounds include public health, public policy, governance, urban planning, and atmospheric science. By incorporating research from all of these fields into climate adaptation solutions for cities, GLAA-C aims to create replicable programs to tackle the interconnected challenges which climate change presents.

**For more information on the GLAA-C Project please contact Beth Gibbons at
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GLAA-C is an Integrated Assessment of the Graham Institute at the University of Michigan. More information about the Graham Institute is available online at www.graham.umich.edu