# How do Great Lakes Cities Compare? Patterns of climate resilience in regional water policy

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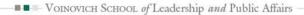
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## Introduction

 Results from a national study of local government climate policies

Focus on jurisdictions in the Great Lakes watershed

 Examines who in the water sector is engaged in climate planning, scope of effort, sources of information and learning, and barriers

### Resilience

"the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks"

Source: Walker, B., Holling, C. S., Carpenter, S. R., Kinzig, A. (2004). "Resilience, adaptability and transformability in social—ecological systems". *Ecology and Society* **9** (2): 5.

# The importance of local

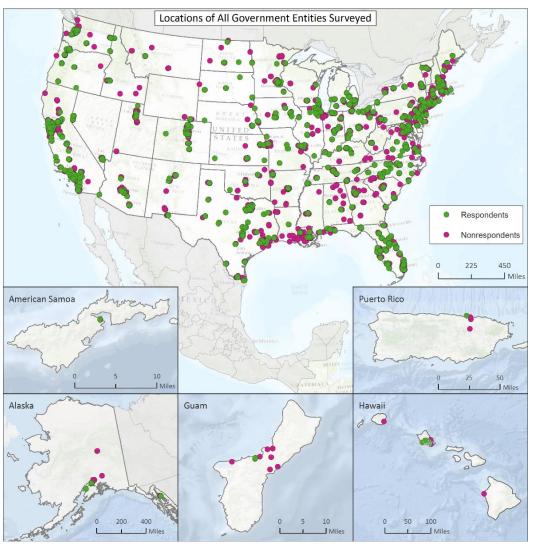
- Local jurisdictions are leading in climate policy
- Nature of climate impacts and effective responses are highly localized
- Compare climate planning and policy activities in the water sector among local jurisdictions within the Great Lakes watershed



#### LOCAL CLIMATE POLICY PROJECT

- National-level NSF-funded study to understand local climate policies
- Organizations identified as playing an important role in local climate policy were surveyed
- Assessed how organizations viewed the policy challenges that climate change poses to their activities

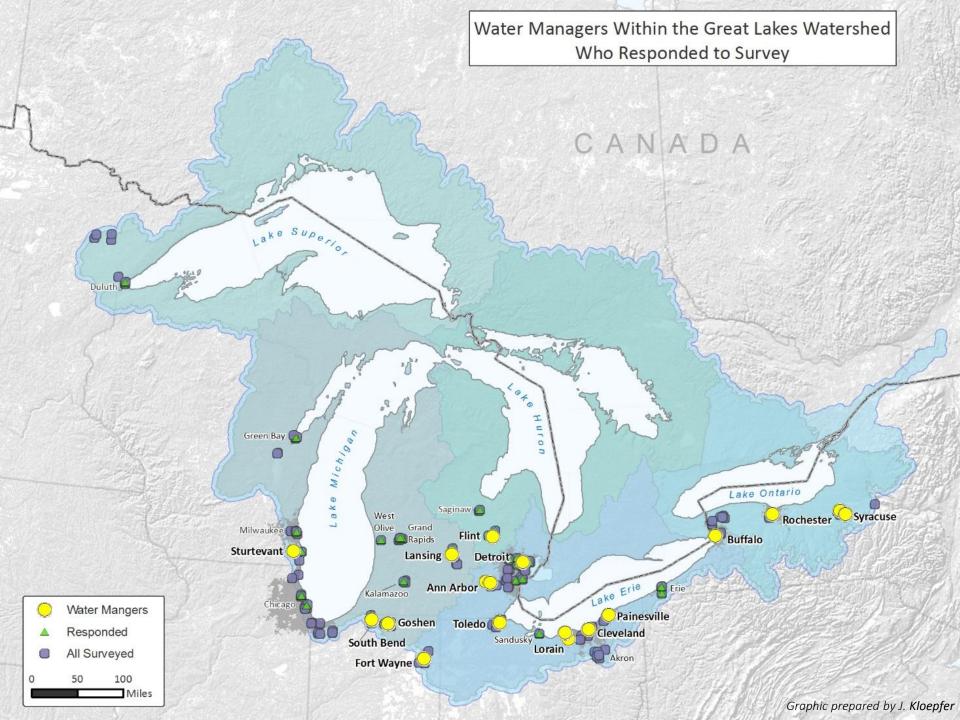
# Local Governments and Climate Policy



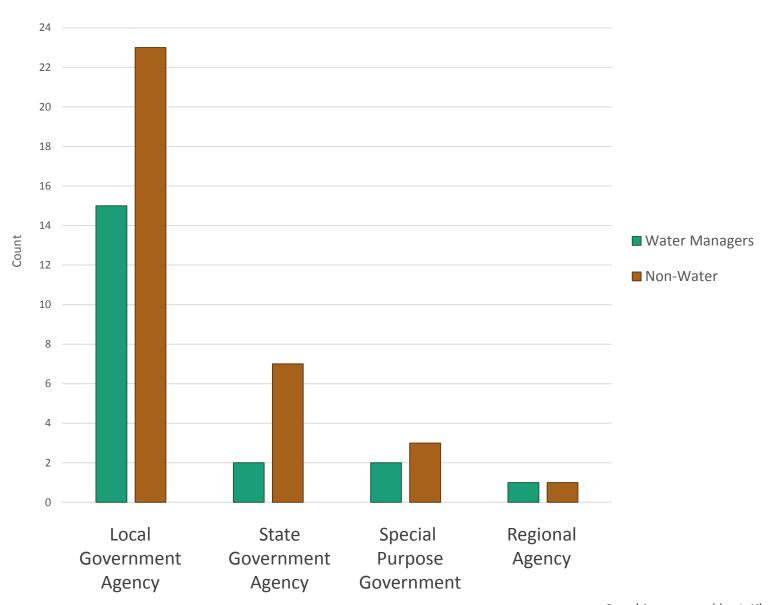
Graphic prepared by J. Kloepfer

# Survey Methods

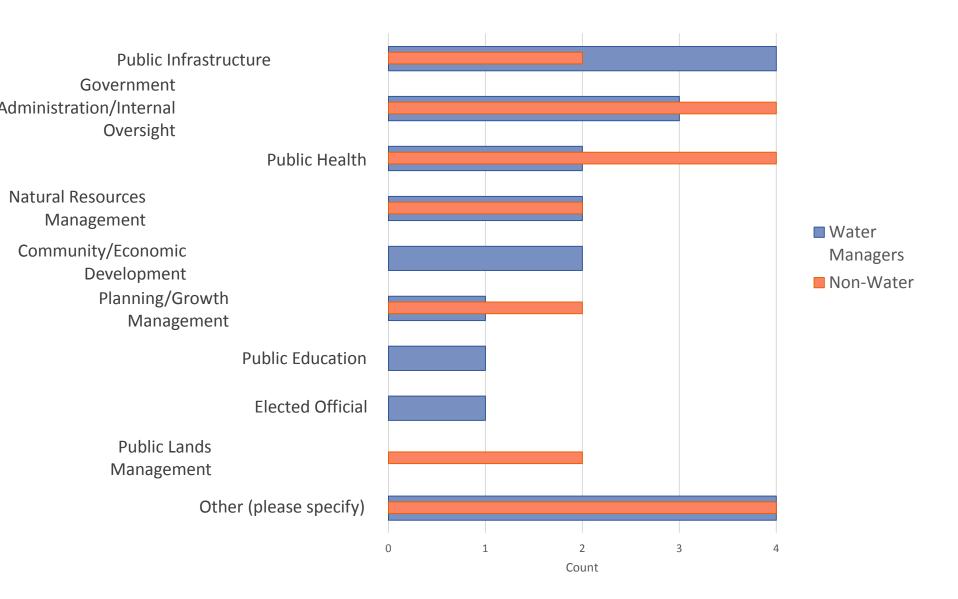
- Research focuses interaction with water across sectors
  - Current activities
  - Sources of information and organizational learning
  - Barriers and gaps
- Subset of survey focusing on Great Lakes watershed
  - Surveyed: n= 704
  - Respondents: n= 80
  - Water managers: n= 20



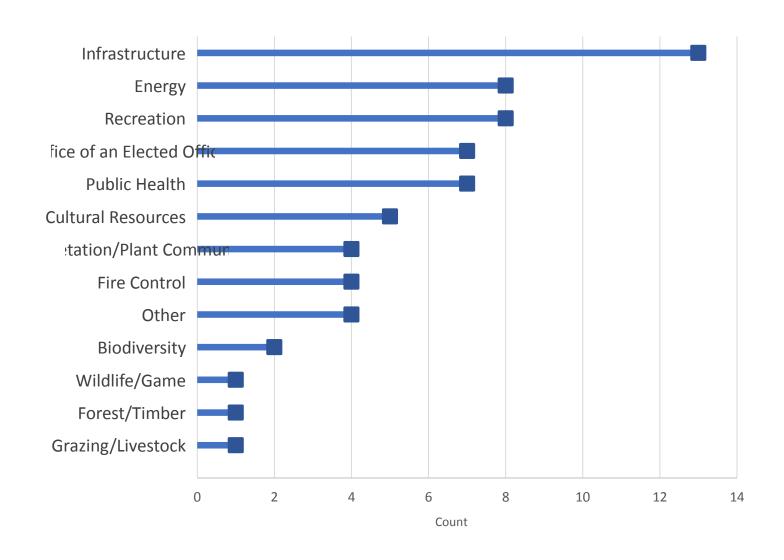
#### Type of organization



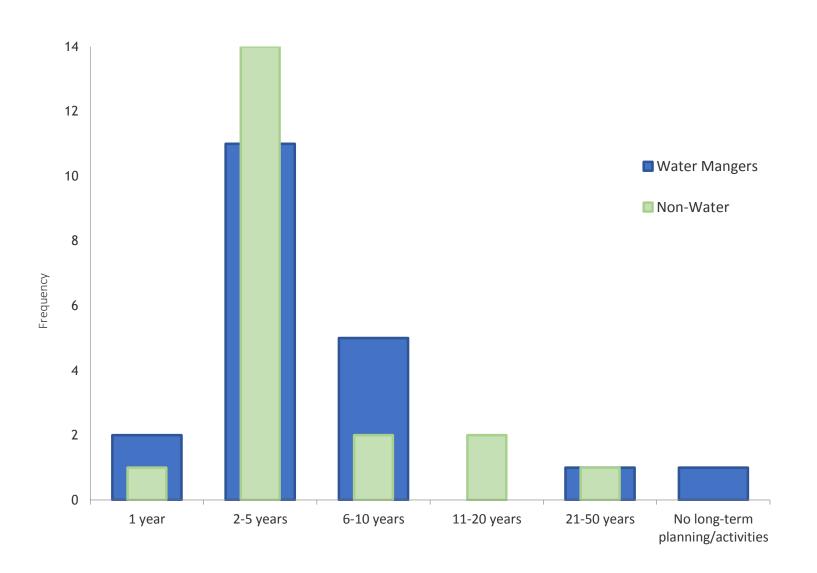
#### Primary organizational role



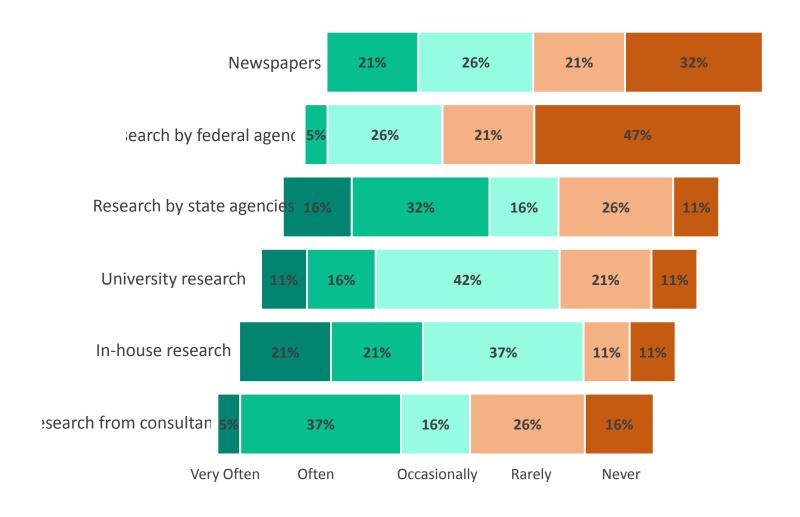
#### What other issues are water managers associated?



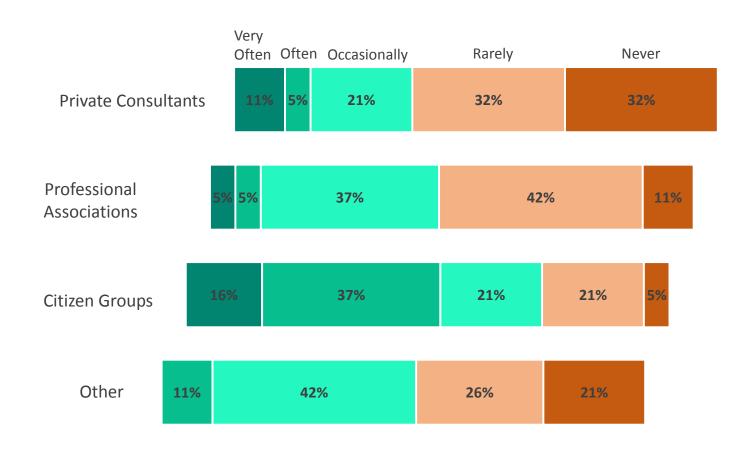
#### Planning time frame for your organization



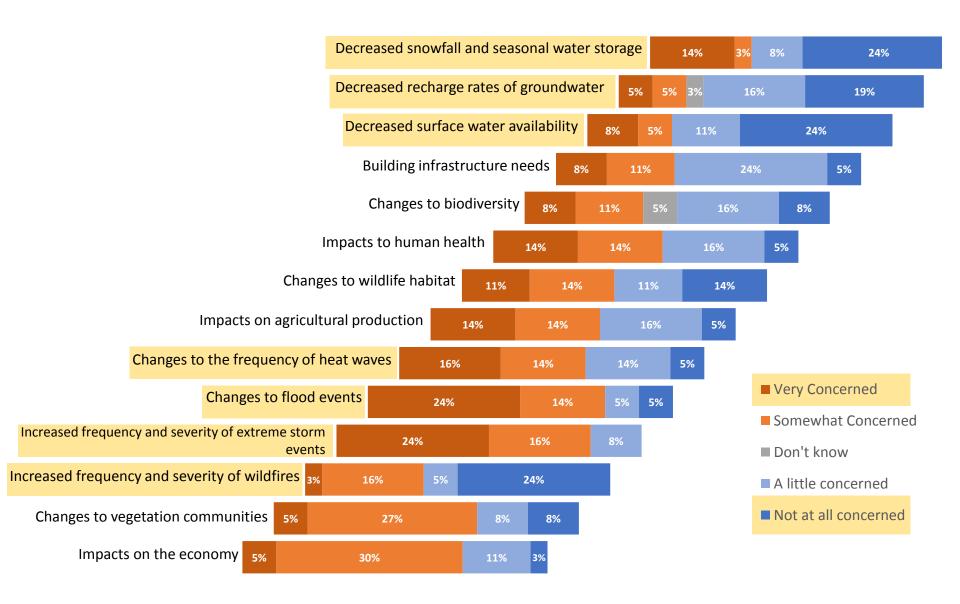
#### Source of information on impacts of climate change



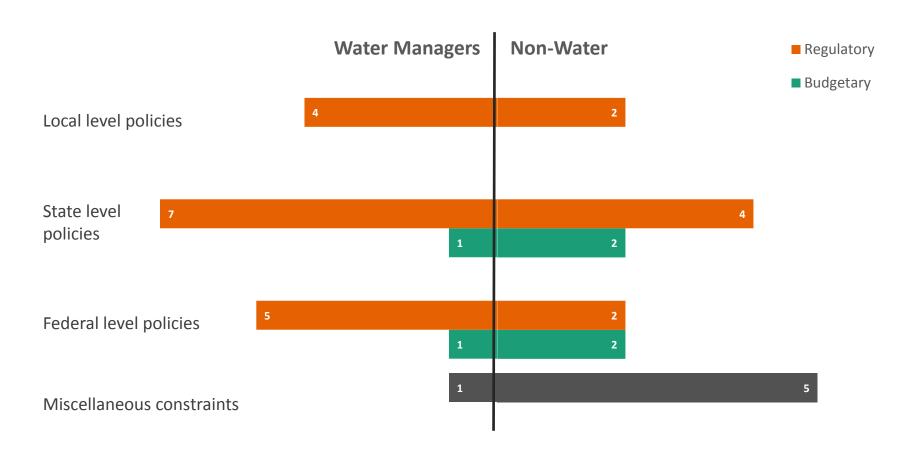
#### From who do you learning about climate policy?



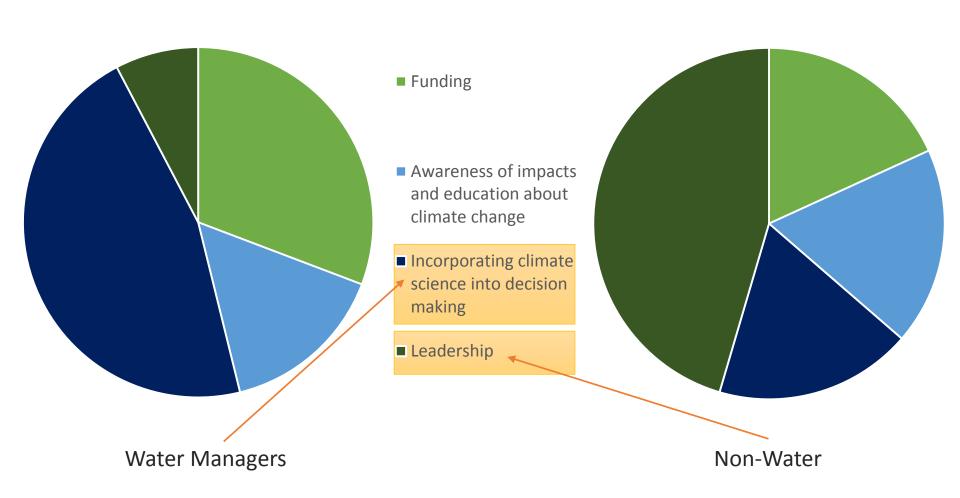
#### Level of concern about potential climate impacts



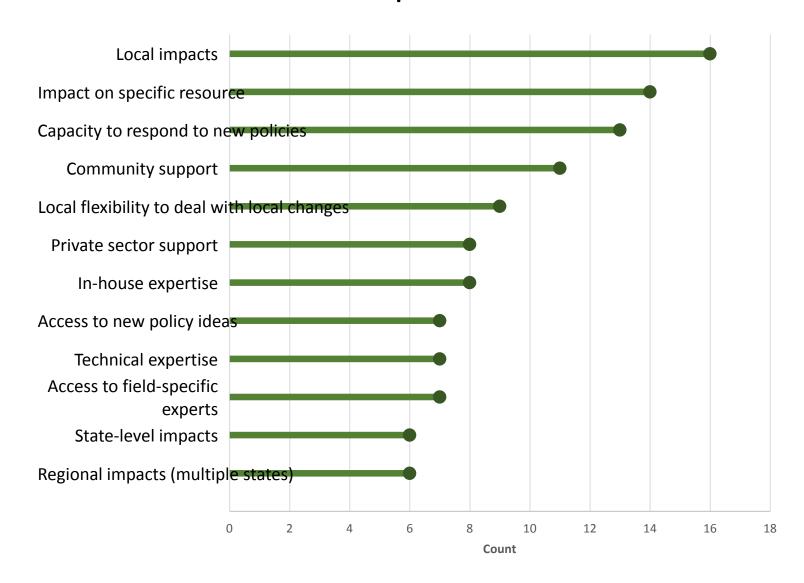
#### Source of policies that constrain your ability to act locally



# One thing that would improve climate change decisions in your organization



# What do water managers need to better manage climate impacts



#### Climate policy activities among water managers

#### Vegetation Community Implementation "Forest Resources: We are including very broad adaptation strategies in our Regional State Forest Management Plans, and hope to also refine these to a finer scale over the next 5-10 vears." Wildlife Planning vulnerability assessment." **Built Infrastructure** Water "We are working on developing "Working with the University of

a plan for our water plant to address concerns with the intake of blue algae from the lake due to climate change."

- Vulnerability focused on identifying risks
- Adaptation activity that reduces risk or allows for new opportunities
- Resilience activity that increases ability of system to respond to change

"Resiliency considerations have been incorporated into the Green Code and the City's Local Waterfront Revitalization program policies. Further work is needed on the likely anticipated impacts of climate change on our specific locality to further support resiliency."

"...Hiring an 'adaptation specialist' to work on multiple adaptation needs, including climate change; improving data availability through funding to downscale data; better information to staff so they can better apply adaptation strategies in their work; integration of climate change in to the Wildlife Action Plan; Species

Michigan on studying parts of the City that are prone to flooding and identifying adaptation BMP's that would be applicable."

## Conclusions

- Provides information on how climate science might better serve the needs of the water sector (localization and downscaling)
- Climate challenges reflects the human intensive landscape and urban characteristics of the water sector
- Citizen organizations provide source of organizational learning on climate policies
- Water sector needs include localization of climate science, link to management issues, and capacity building in responsiveness to new policies

## Questions?

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