Toward a framework for Assessing Stakeholder Needs in Responding to Climate Change Across Spatial and Temporal Scales

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Outline

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- Methods
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- Stakeholder Needs:
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  - Governance and Leadership
  - Collaboration and Communication
- Emerging Themes and the Adaptation Deficit
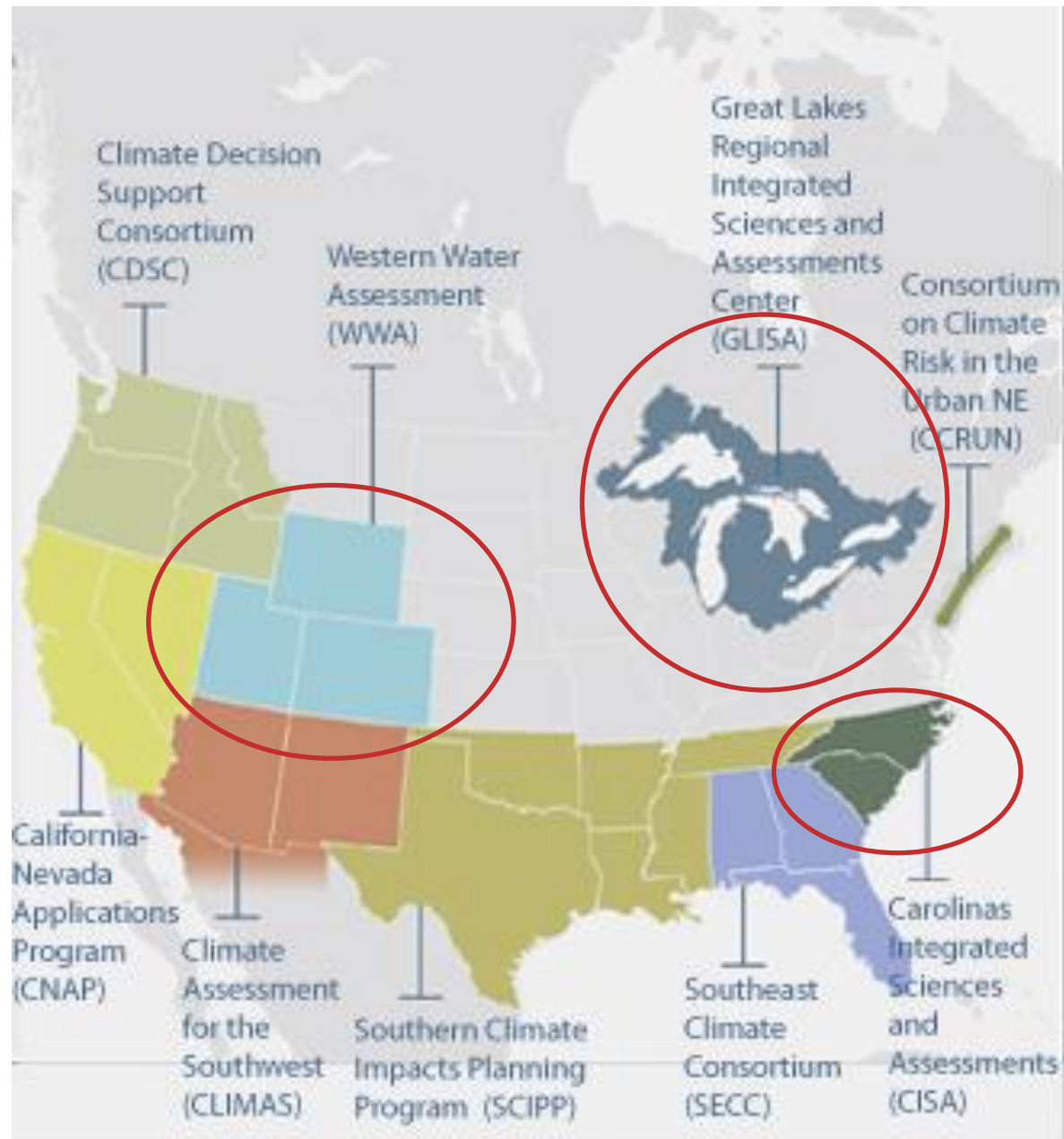- Next Steps

Project Goals

- Understand previously stated stakeholder needs and constraints with respect to climate change
- Compare across sectors and regions
- Look for key factors such as the influence of time, interaction with information providers, etc.
- Build a framework through which to support an ongoing assessment capacity

Preventing "stakeholder fatigue…"

Climate Decision Support Consortium (CDSC)

Western Water Assessment (WWA)

Great Lakes Regional Integrated Sciences and Assessments Center (GLISA)

Consortium on Climate Risk in the Urban NE (CCRUN)

California-Nevada Applications Program (CNAP)

Climate Assessment for the Southwest (CLIMAS)

Southern Climate Impacts Planning Program (SCIPP)

Southeast Climate Consortium (SECC)

Carolinas Integrated Sciences and Assessments (CISA)

Methods

- Here we emphasize the document analysis results:
  - Open-ended search for documents from sectors or stakeholders with reference to climate variability and change
  - Cataloging and Coding of documents (N-Vivo)
    - Activities related to climate variability and change, where is focus
    - Needs and Constraints articulated
    - Networks and key organizations/individuals
- Some minor differences in document inclusivity among RISAs

Document Characteristics

Date	Number of Documents		
	CISA	GLISA	WWA
1997		2	
1998		0	3
1999		0	0
2000		1	1
2001		2	0
2002		1	1
2003	2	3	2
2004	1	1	1
2005	6	3	0
2006	1	2	6
2007	9	6	7
2008	45	9	10
2009	25	9	11
2010	36	2	9
2011	1	1	4
no date	2		
Total	**128**	**42**	**55**

	Number of Documents		
Primary Sector	CISA	GLISA*	WWA
Agriculture	N/A	25	1
Forestry	13	11	N/A
Government Initiatives	38	17	N/A
Natural Resources/Wildlife	18	18	10
Recreation/Tourism	30	20	3
Tribes	N/A	4	2
Water	19	33	26
Multiple	10	26	13

*non-exclusive designations

Results – Key focus on Water Sector

Lake Hartwell   August 2008

Jim Wilson/The New York Times

EPA

Shared Water-Related Concerns

- Increased variability in precipitation, or more dynamic
- Uncertainty in how climate change will affect regional and local scales
- Sectoral concerns such as higher fire risk, higher possibility of drought
- Changes in snowpack (WWA and GLISA)
- Water quality (in CISA and GLISA regions)

Unique Concerns

- Shipping impacts from low water levels in Great Lakes (GLISA)
- Coastal impacts (salinity intrusion, availability of freshwater) due to SLR and changing precipitation patterns(CISA)

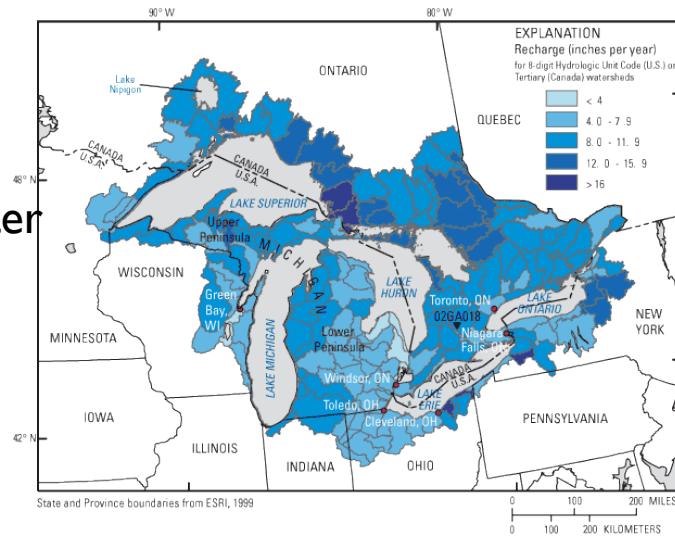# Stakeholder Needs I: Data and Information

	GLISA	WWA	CISA
Data and Information Needs	➢ Improved understanding of current processes, e.g. hydroclimatological processes, instream flow requirements, water withdrawals		
	➢ Monitoring and data collection (groundwater, sediment transport)	➢ Monitoring and data collection (streamflow, snowpack, sediment transport)	➢ Monitoring and data collection (streamflow, water use, groundwater)
	➢ Climate scenarios and integration with existing management models		
	➢ Strong need for better predictive models of hydrology and lake levels	➢ Downscaling and better regional modeling at scale useful to water managers	➢ Strong need for "baseline" data– need to understand current sources and withdrawals

Monitoring and Data Collection

CISA: Water supply and demand

Little River, NC

GLISA: groundwater

WWA: Snowpack

Stakeholder Needs II: Governance and Leadership

	GLISA	**WWA**	**CISA**
Governance & Leadership	➢Need for Legal Frameworks: Continued integration of Ontario and Québec into the United States-based Great Lakes Compact	➢Need for Legal Frameworks: Assessment of climate change implications for water rights system	➢Need for Legal Frameworks: Comprehensive system of water management (e.g. water allocation and withdrawal permitting system, water use reporting)
	➢Mainstreaming of climate change into everyday planning and management decisions	➢ Political support for development of adaptation policies;	➢Funding for Implementation: ◦ Require or provide incentives to enhance water quality or quantity ◦ Improve technical (mapping, monitoring) resources
			➢Comprehensive flexible plans

Stakeholder Needs III: Collaboration & Communication

	GLISA	WWA	CISA
Collaboration & Communication	➢ Public education about climate change		
	➢ Across jurisdictions	➢ Between researchers and managers; managers and planners	➢ Across and within management levels and agencies
	➢ Easy to understand indicators	➢ Better early warnings	➢ Tools to discuss climate models and assumptions in a non-technical format
	➢ Decision-support tools to help formalize the decision-making process	➢ Centralized 'clearinghouse' for climate change information	➢ Tools to support education and outreach for the public and policy makers ➢ Information about best management practices, including local case studies

Emerging Themes

- Data needs are not only specific to the physical situation of the region, but are specific to the governance structure (e.g. water rights system, permitting situation)
- Regions at various baselines with respect to awareness of climate variability and CC
- Attention to climate in water management often triggered by drought situation (or lake levels/water quality – GLISA)
- Existing ability to respond to climate variability constrained in multiple ways- climate change may compound existing constraints and require engagement with new challenges

"Adaptation Deficit"*

- Lack of or eroding support for baseline data and monitoring
- Lack of local funds for repairing or retrofitting existing infrastructure
- Absence or inadequate coordination at multiple levels
- Despite some progress, still a disconnect between researchers and managers/decision makers

*Term coined by Burton and May 2004

Conclusions

- Stakeholders are fairly consistent in the <u>categories</u> of needs across regions:
  - Data and information
  - Governance and Leadership
  - Communication and Collaboration
- <u>Specifics</u> can and do <u>vary</u>
- While some needs may be met, others are perennially listed. Raises a question about institutional and organizational capacity

Conclusions

- Pros of document analysis:
  - Provides good background information and formal statements of needs
  - Some needs are consistent across regions, and time (have not been addressed)
- Cons of document analysis:
  - Limited in demonstrating decision maker networks
  - Limited in fully articulating activities and decisions related to climate
- RISA regions building on this research in different ways and still in process of analysis

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