

Great Lakes Coastal Infrastructure Scoping Workshop

Current and Proposed Climate
Research in the Great Lakes
Basin

Adaptation

- Refers to actions and responses of a system to exposure – the amount of potential damage caused by climate related event or hazard
- Can result in an equal or improved situation or a worse situation – when compared with the initial condition
- Adaptation is related to a system's level of “resilience”

Resiliency

- Refers to the amount of change or variability a system can absorb
- Also refers to a system's capacity for self-organization and its ability to learn and innovate in face of uncertainty and change

Impacts

- Lake levels in the Great Lakes could drop significantly, affecting wetlands, water quality, recreational facilities, and shipping

Source: USEPA – Global Warming and the Great Lakes Region

Addressing the Impacts of Climate Change in the Great Lakes Basin

Keweenaw River Lighthouse at Mclain State Park Houghton County, Michigan



Current/On-Going Research

- GLERL Climate Change and Variability Program

- Conducts studies to identify and improve our understanding of the impacts of climate change and variability on socio-economic frameworks and ecosystem structure and function, including those through intermediate effects such as changes in the water supply of the Great Lakes Basin

Source: <http://www.glerl.noaa.gov/res/Programs/ccmain.html>

Proposed Projects

- MI Sea Grant proposal: Adaptation and Mainstreaming Climate
 - Proposal seeks funding through the NOAA Sectoral Applications Research Program (SARP)
 - SARP description/goals available at:
http://www.climate.noaa.gov/cpo_pa/sarp/

MI Sea Grant Study Proposal

Study Goals:

- ✓ Assess adaptation needs
- ✓ Characterize determinants of regional capacity
- ✓ Design and test decision support tool to mainstream climate into policy design and implementation
- ✓ Explore regional models of co-production of science and policy
- ✓ Encourage the formation of a network of decision makers to foster better interaction and communication

MI Sea Grant Study Proposal

- Study will focus on potential impacts of climate change: declines in Great Lakes water levels and length of ice-cover duration and the negative impacts on shipping/water intakes; reduction in suitable habitat for trout and whitefish; earlier ice breakup and spring runoff and increases in heavy rainstorms will cause increasing erosion and pollution loads

MI Sea Grant Study Proposal

- From the suite of potential impacts, the study will focus on 3 vulnerable sectors in the Great Lakes and Michigan:
 1. Fisheries
 2. Transportation
 3. Tourism

GLC Climate Change Proposal

Climate Change in the Great Lakes: Coastal Community Adaptation Strategies

- Proposal seeks funding through NOAA Broad Area Announcement

GLC Climate Change Proposal

The project has 4 distinct yet complimentary elements:

1. Addressing the impacts of climate change on Great Lakes navigation, transportation and coastal community infrastructure
2. Enhancing regional coastal community capacity and resiliency
3. Case study to showcase the application of LEED ND in coastal areas
4. Summary of state wetlands protection policies across the Great Lakes region

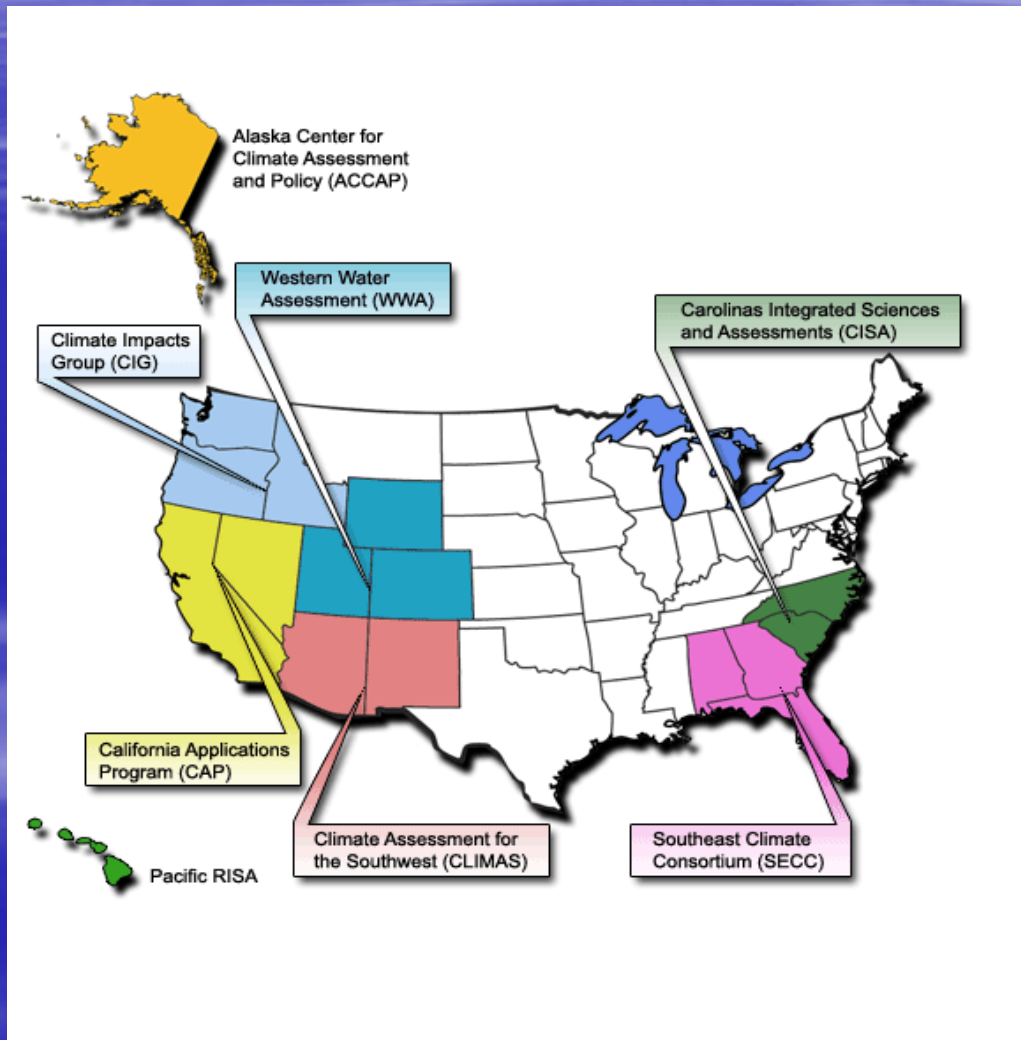
GLC Climate Change Proposal

1. Addressing the impacts of climate change on Great Lakes navigation, transportation and coastal community infrastructure
 - This element would further/expand the ideas developed from this workshop, and the current partnership between GLC and the NOAA Coastal Services Center
 - The GLC and partners will develop scenarios for Great Lakes water levels and demonstrate the potential effects of higher/lower water levels on coastal communities and infrastructure
 - Critical infrastructure will be identified; adaptation strategies suggested
 - Educational materials resulting from the project would be distributed to relevant federal agencies, Great Lakes states and communities, coastal managers, stakeholders

RISA: Future Goal?

- Regional Integrated Sciences and Assessments (RISA)
 - supports research that addresses climate sensitive issues of concern to decision-makers and policy planners at a regional level
 - team members are primarily based at universities though some are based at government research facilities, non-profit organizations or private sector entities
 - research has focused on the fisheries, water, wildfire, and agriculture sectors
 - program also supports research into climate sensitive public health issues and recently, coastal restoration has become an important research focus

The NOAA Climate Program Office: Currently Funded RISA Teams



Questions?

Thank You!

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