

Stakeholder-based research activities:

An overview of ongoing NSF projects

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Research objectives

UWIN SRN

- Develop new information regarding transitions to sustainable urban water systems
- Build network of stakeholders and researchers across US
- Understand adoption of water technologies
- Develop sustainable water blueprint based upon extensive stakeholder feedback

SFWSC

- Develop new information on economics of water
- Build a hydroeconomic optimization model
- Use the model to simulate and evaluate tradeoff decisions
- Understand how different information leads to different decisions among individual and groups of decision makers

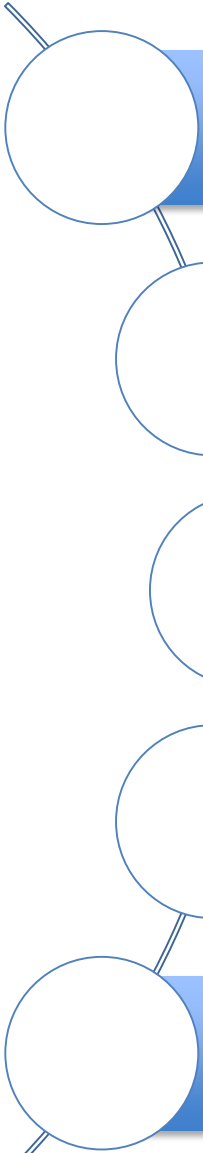
Purpose of Research-Stakeholder interactions



Goals of stakeholder based research

- Provide input for research products
- Test research products
- To develop relevant and usable science!

UWIN Stakeholder Engagement Goals



Elicit active stakeholder contribution to research and outreach

Build social capital through network development and measure with network analysis and pre-/post-meeting surveys

Build inter-regional horizontal connections and capacity for information exchange

Create “safe spaces” for innovation

Develop Urban Water Sustainability Blueprint

Conceptual Framework for stakeholder based research (UWIN)

Year 1.

Building the network and learning about concerns

Year 2.

Understand decisions

Year 3.

Developing actionable science

Year 4.

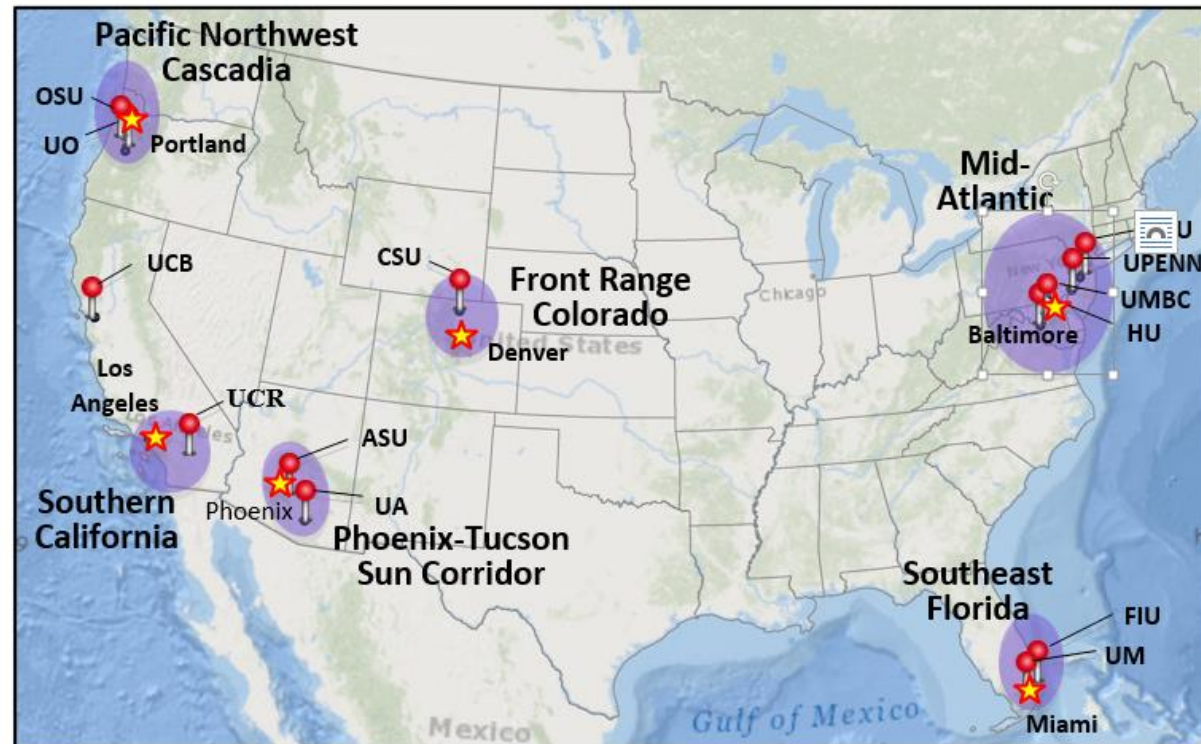
Best management practices and Blueprint development

Year 5.

Presenting updated Blueprint and extend the network

Annual Stakeholder Meetings

- Same core team responsible for facilitation and data collection at all regional meetings
- Host urban area research team participates
- Core cities:
 - Baltimore, MA
 - Miami, FL
 - Denver, CO
 - Phoenix, AZ
 - Los Angeles, CA
 - Portland, OR



Meetings Research Arc

- Year 1: Build the network and learning about concerns

Year 1 Goals

- Build network cohesion
- Establish clear objectives to foster participation
- Identify challenges in urban water management
- Inventory existing water sustainability projects
- Survey Focus: Gather project data

Meetings Research Arc

- Year 2: Understand decisions

Year 2 Goals

- Enhance understanding of regions' water sustainability decisions
- Focus discussions on decisions and barriers to implementing sustainability strategies
- Survey Focus: Gather data on decisions

Meetings Research Arc

- Year 3: Develop actionable science:

Year 3 Goals

- Presentations on science
- Case studies from other cities
- Focus discussions on adapting information to host city
- Survey Focus: Barriers to using science and perceptions of usability

Meetings Research Arc

- Year 4: Best management practices

Year 4 Goals

- Collaboratively identify best management practices
 - ✓ Technical
 - ✓ Communication, implementation, adoption strategies
- Discuss draft Blueprint
- Survey Focus: Understanding best management practice

Meetings Research Arc

- Year 5: Present updated Blueprint and Extend the Network:

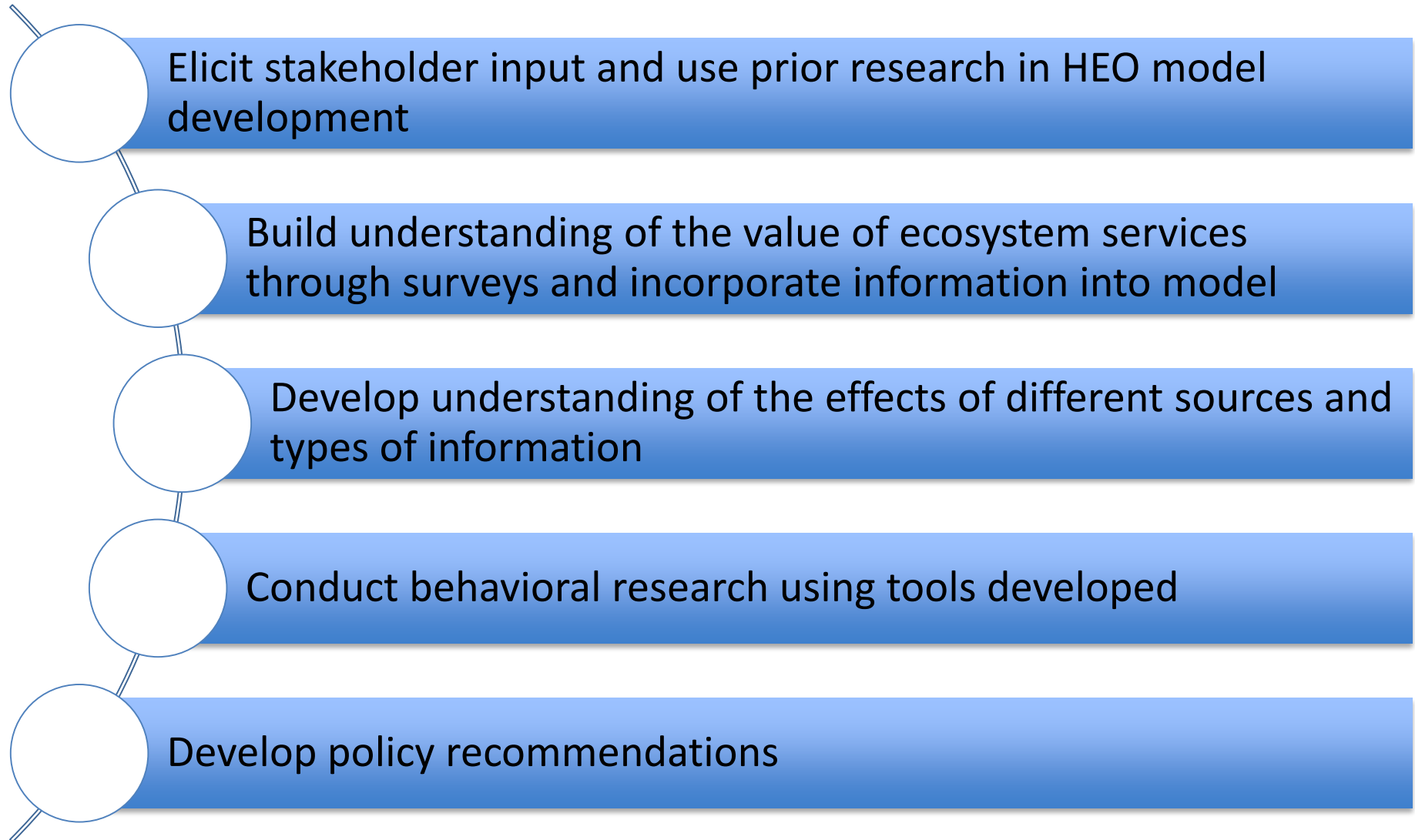
Year 5 Goals

- Vetting of integrated Blueprint
- Survey Focus: Network extension and sustainability

Ongoing network engagement

- Develop strategy for maintaining engagement of network members
- Water Sustainability Hub for knowledge management

SFWSC Stakeholder Engagement Goals



Conceptual Framework for stakeholder based research (SFWSC)

Ethnographic Research

- Drivers of decision making
- How decisions are made
- Who makes decisions

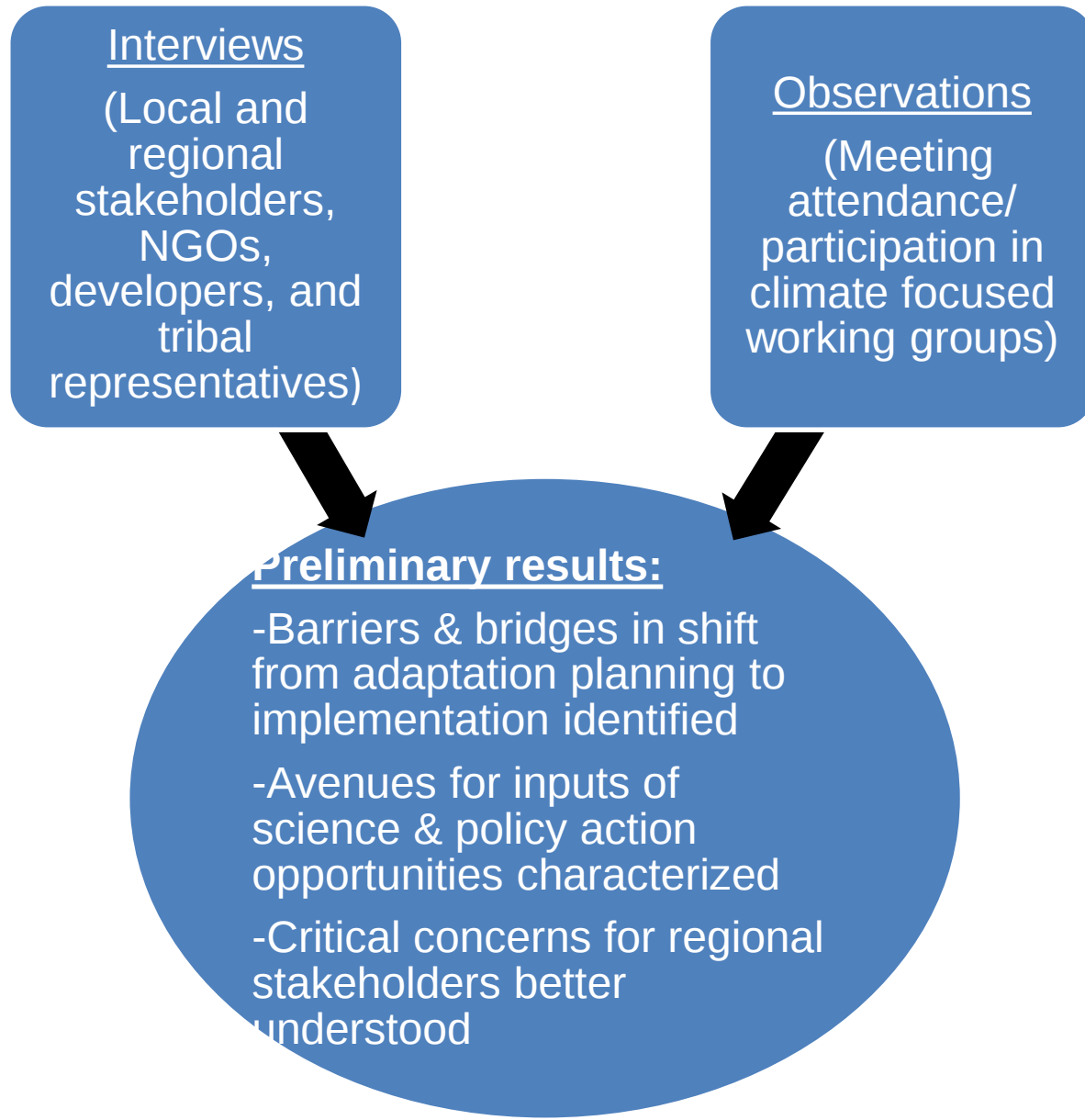
Develop research tools and questions

- Survey tools (residents & anglers)
- HazSim (household scale)

Contribute to model development and test model outputs

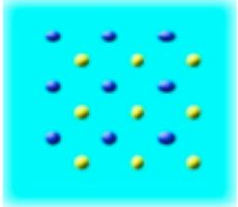
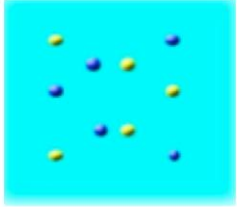
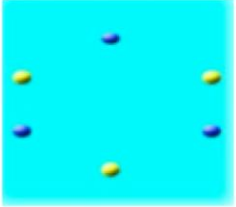
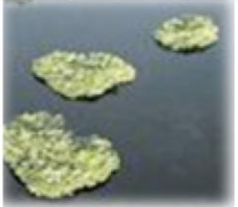
- Provide inputs for model
- Test model outputs with stakeholders

Three Pronged Approach Ethnographic Research



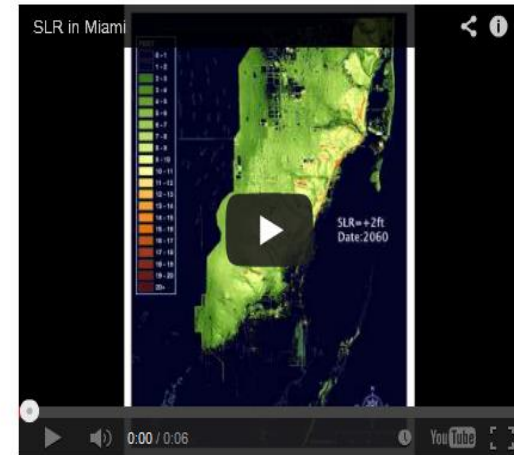
Surveys conducted

Modified Choice Card

Attributes	Current Scenario	Option A	Option B
Water Quality Maintenance (through nutrient reduction)	 No change in nutrient reduction	 40% reduction in nutrients	 70% reduction in nutrients
Mangrove Restoration (Through increase in mangrove acreage)	 No change in current mangroves acreage	 35% increase in mangrove acreage	 60% increase in mangrove acreage
Flood Risk Reduction (Through increase in coastal wetland acreage)	 No change in current wetland acreage	 40% increase in wetland acreage	 65% increase in wetland acreage
Option for Payment	\$0	\$45	\$65

Sea level rise (SLR) due to climate change poses one of the greatest threats to South Florida. Scientists predict by 2060, Miami-Dade, Broward, Monroe, and Palm Beach Counties will all see 2 feet of sea level rise. This climate change scenario of 2 feet of SLR by 2060 is endorsed by the US Army Corps of Engineers, and officials in South Florida are actively preparing for this future scenario.

Please watch the following video, which displays sea level rise projections for Miami-Dade County up to 5feet.



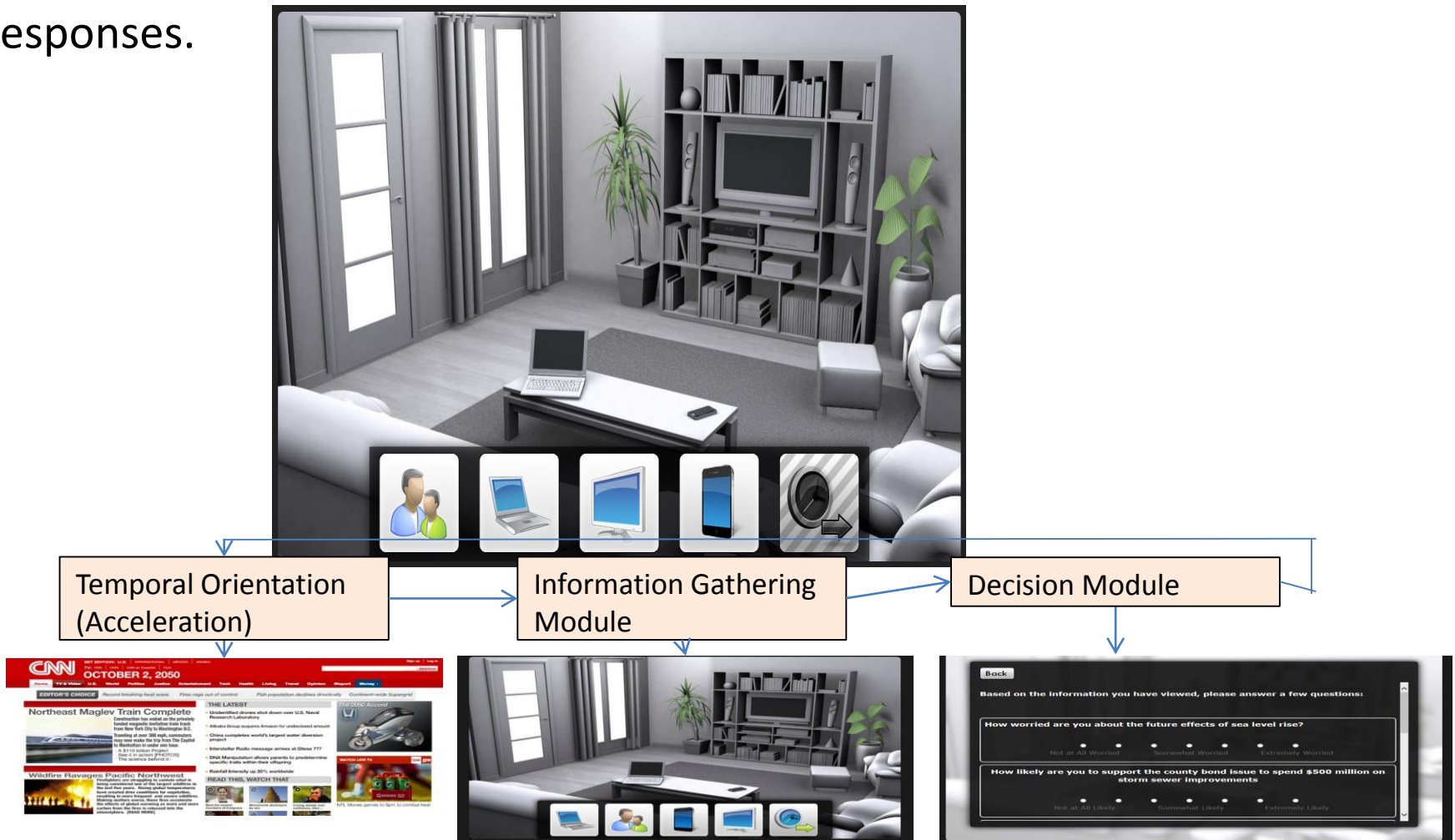
Credits: Dr. Peter Harlem, Florida International University

On a scale from "Strongly Disagree" to "Strongly Agree," please indicate your level of disagreement or agreement with the following statements.

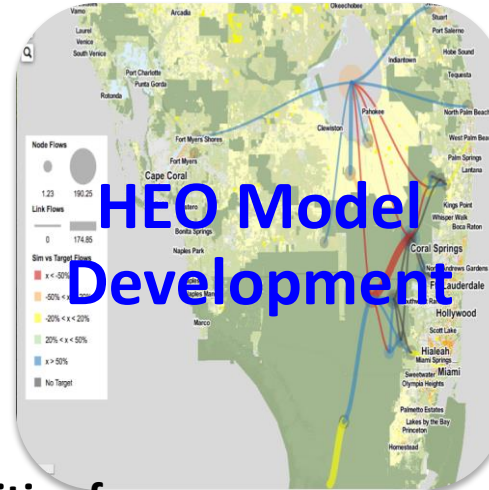
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I believe that sea level rise is an effect of human-induced climate change	☐	☐	☐	☐	☐
I believe that sea level rise will have negative impacts on South Florida	☐	☐	☐	☐	☐
I believe sea level rise will directly or indirectly impact me in a negative way	☐	☐	☐	☐	☐
I believe sea level rise will directly or indirectly impact me in a positive way.	☐	☐	☐	☐	☐

Surveys conducted:

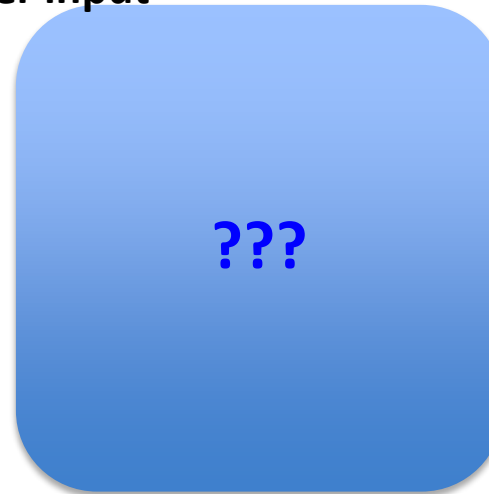
HazSim – A general programming platform allowing rapid development and deployment of Information Acceleration experiments. Users access information via a virtual living room computer, television, cell phone, and individuals, and data includes all click sequences, durations, and survey responses.



Ongoing research



Opportunities for
stakeholder input





- Information testing: how might different types & sources of information lead to different decisions?
- Developing different iterations of HazSim
- Exploring model runs and outputs
 - Tradeoff analyses
 - Scenario analyses and discussions
- Blueprint development
 - Development of something useful across regions

Thanks!

Questions?

Discussion (20 minutes)

- Impressions? Potential roles in these projects?
- Avenues for participation?
- How to engage regional stakeholders and organize the meetings?
- Interest in participation?
- Interest in national level study and/or cross city comparisons?

Activity (40 minutes)

- How can we incorporate the perspectives of utilities, managers, suppliers in our model?
 - What are the primary linkages between utilities, suppliers and regional water allocation?
 - What affects utilities' operating costs?
 - Any additional recommendations for economic section of model?
 - What comes to mind when considering different future land use scenarios?
 - What are the implications of the climate scenarios presented?