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***Broward • Miami-Dade • Monroe • Palm Beach***

***FIRST ANNUAL REPORT***  
***February 2011***

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## INTRODUCTION & BACKGROUND

Southeast Florida, comprised of Miami-Dade, Broward, Palm Beach and Monroe Counties, is addressing climate issues beyond the borders of individual jurisdictions. The 5.6 million residents of our four counties exceed the population of 30 states and represent 30 percent of Florida's population. Recognizing their vulnerability to climate impact, the County Commissions joined efforts and formally approved the Southeast Florida Climate Change Compact, ratified in January 2010.

The Southeast Florida Regional Climate Change Compact was the outcome of an October 2009 Climate Leadership Summit hosted by Broward County. The summit served as a call to action aimed at elected leaders to work collaboratively to address the regional challenges and threats associated with global climate change.

The Compact commitments include:

- Development of joint federal and state policy position on climate related issues, which includes:
  - recognizing the unique vulnerabilities of Southeast Florida to the impacts of climate change,
  - allocating funding based on vulnerability,
  - supporting enhanced levels of participation in regional adaptation projects,
  - supporting energy and climate security and a renewable energy portfolio standard for the State.
- development of a *Southeast Florida Regional Climate Change Action Plan*, which includes:
  - conducting a regional greenhouse gas emissions inventory (with a particular focus on emissions from inter-county travel and commerce);
  - developing regional climate impacts planning scenarios incorporating sea-level rise and other potential impacts; and
  - developing climate mitigation and adaptation measures for each of the three

sectors included in the compact: land use, regional transport, and the built environment.

- annual participation in regional summits to mark progress.

Consistent with these commitments, Miami-Dade County hosted the Second Annual Southeast Florida Regional Climate Change Leadership Summit in October 2010 with more than 100 participants and climate-related training for 50 staff.

Staff has also formed a working Steering Committee with representation from the Compact Counties and the South Florida Water Management District (SFWMD) as an invited partner. The Climate Leadership Initiative (CLI) is providing technical and administrative assistance to the regional climate action planning process as part of its national climate preparedness program while Florida Atlantic University's Climate and Energy Program and ICLEI—Local Governments for Sustainability have also played a supporting role. By working collaboratively at the regional level, the counties seek to enhance their individual efforts to mitigate emissions associated with the built environment, regional transportation and land use. The counties seek also to actively incorporate adaptation considerations into the regional action plan.

The Compact Counties and their partners work cooperatively with regional and national entities to implement the Compact's objectives. Accomplishments to date include a resource survey of the partner counties, the development of regionally-consistent methodologies for inundation mapping and vulnerability assessment, joint grant applications, a regional greenhouse gas emissions inventory, a unified sea level rise projection for the region, and joint policy positions on climate change. Collectively, these work products create a foundation for the development of a regional climate action plan in the coming year.

## CLIMATE CHANGE VULNERABILITIES

Southeast Florida (SE Fl), comprised of Broward, Miami-Dade, Palm Beach, and Monroe Counties, is one of the most vulnerable regions in the United States to the impacts of climate change. Low land elevations and a dense coastal population supported by a highly permeable surficial aquifer make the region particularly at risk to sea level rise. Rising sea level has already begun to overwhelm local drainage systems in places, with salt water rising through drainage culverts and spilling across seawalls during high tide events. The region is home to a population of nearly 5.6 million residents and accounts for one-third the total gross domestic product (GDP) for the entire state of Florida.

Climate programs and policies expected to be initiated at the state, federal, and international level in 2009 were deferred or failed to be passed. The SE Florida Regional Climate Change Compact, entered into by the four SE Fl counties, provided a focus for setting local priorities regarding mitigating greenhouse gas emissions and adapting to the impacts of climate change. The Compact offers the opportunity to identify vulnerabilities unique to our region, including drainage and flood control, water supply, coral reefs, and the Everglades. Recognizing the substantial benefits to be gained through a broader collaboration with neighboring Counties, the Staff Steering Committee fosters the collaboration and implementation of the Compact to achieve greater effectiveness in addressing climate issues. Progress is made through consensus.

## STAFF ASSIGNMENTS & PROGRESS REPORT

The ratification of the Compact by January 2010 by all four counties led to the formation of a Staff Steering Committee. Their mission is to provide regional coordination in the development of mutually agreed upon federal and state climate policies, the implementation of all aspects of the SE Florida Regional Climate Change Compact and the provision of liaison function back to their governing bodies. To further this purpose and in recognition of the role water management would play in adapting

to climate change regionally, the four county partners invited the South Florida Water Management District (SFWMD) representation on the Staff Steering Committee.

The Staff Steering Committee developed a management strategy and a general work plan in early 2010. The management strategy outlined membership, meeting frequency, meeting location, tasks to accomplish, technical team composition and goals, and ground rules for collaboration. This guidance document created the foundation for moving Compact implementation forward.

### ***Compact Counties Resources Survey***

A survey was compiled in September 2010 to gain information on the status of each County's climate and sustainability efforts and to identify Board policy directives. The survey questions were presented in three categories: Administration, Technical and Policy. The survey was the first step in determining the needs of all partner counties so that we might work to equalize resources and modeling efforts to achieve long term regional goals.

### ***Joint Funding Applications***

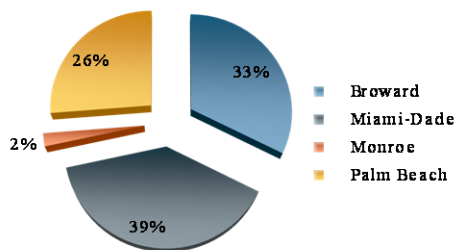
During the spring of 2010, the Staff Steering Committee met several times to review grant opportunities and discuss joint projects. With the help of the Climate Leadership Initiative, the Compact developed and submitted several pre-proposals. While none of the grants was ultimately funded, the willingness of the Counties to apply jointly rather than submitting applications on their own demonstrated the commitment to a regional approach to adapting to climate change.

### ***Regional Greenhouse Gas Emissions Inventory***

The technical work group on Regional Greenhouse Gas Emissions Inventory includes a representative from each Compact County. This staff volunteered to collect specific greenhouse gas emission inventory data from selected sources for all four counties for 2005, 2006, 2007, and 2008. Multiple years were collected to discern and smooth economic

downturn-related reductions in emissions. Targeted sources included electrical, natural gas, fuel sales and transportation-related emissions. Data collection was coordinated through The Climate Leadership Initiative. ICLEI provided support in analyzing the data and generating the inventory.

## + Regional Emissions – Residential Electricity Emissions (2008)



Preliminary regional comparison of Greenhouse Gas emissions from residential electricity use

### **Vulnerability Analysis**

The National Oceanographic and Atmospheric Administration (NOAA) Coastal Services Center (CSC) worked closely with Broward County and SFWMD to coordinate a two-day technical workshop in April 2010 to develop a unified set of methodologies and criteria for creating sea level inundation maps in the Southeast Florida region. At that workshop, Geographic Information System (GIS) practitioners, representing the Climate Compact Counties as well as the SFWMD, local universities and federal agencies, worked with NOAA experts to understand inundation mapping methodologies, define the local challenges, review available topographic source data and create a consensus set of methods and criteria for inundation mapping. Following this workshop, NOAA and SFWMD worked closely to create an innovative tidal grid surface which could represent sea level rise in a smooth transition across county

boundaries. Using the tidal grid and guidance from the April workshop, SFWMD developed the inundation maps with 1, 2 and 3 foot sea level rise scenarios for each of the four Compact counties.

In August, participants reconvened to agree on aspects of performing vulnerability analysis. They reviewed the results of a pre-workshop online survey focused on determining potential resources at risk to sea level rise for the Southeast Florida area. This survey provided a foundation for discussions at the workshop, covering parameters to assess for vulnerability, methods for determining resources at risk, disclaimer language and other related topics. At this and subsequent meetings, the work group refined parameters of interest and agreed to a set of regionally-consistent and achievable methods of assessing and illustrating vulnerability in Southeast Florida. It was acknowledged that this initial basic analysis was a starting point, with the purpose of establishing a common regional baseline upon which further conversations and analysis may begin. Future, more robust analysis may include but not be limited to consideration of existing groundwater levels, storm surge, tidal anomalies, future water management and operations, and flood mitigation practices.

### **A Regional Response to Deepwater Horizon Oil Spill**

In June 2010, elected officials of the Compact Counties mobilized to convene a regional press event in response to the Deepwater Horizon Oil Spill. Concerned about the threat to the economy and environment of the Compact Counties, they sounded an urgent call for comprehensive federal energy policy and a demand for a permanent ban on oil drilling and exploration in Florida's territorial waters and along Florida's outer continental shelf. Subsequently, the Compact Counties signed onto a Letter to President Obama, resolutions were passed and joint collaboration on regional policies was furthered.

### Unified Sea Level Projection

At the 2009 Summit, the local diversity in sea level rise (SLR) projections was highlighted as a concern and a barrier to achieving regionally consistent adaptation policies. Key participants in developing the existing projections and other local scientists knowledgeable in the areas of sea level rise and climate change were invited to participate as the Technical Work Group on Sea Level Rise.

Through a series of facilitated discussions, the Work Group reviewed the existing projections and the current scientific literature related to SLR with particular emphasis on the impact of accelerated ice melt on projections. The Work Group recommended using the United States Army Corps of Engineers (USACE) July 2009 Guidance Document as the basis for the regional SLR projection. The agreed upon projection uses Key West tidal data as the foundation of the calculation with a reference date

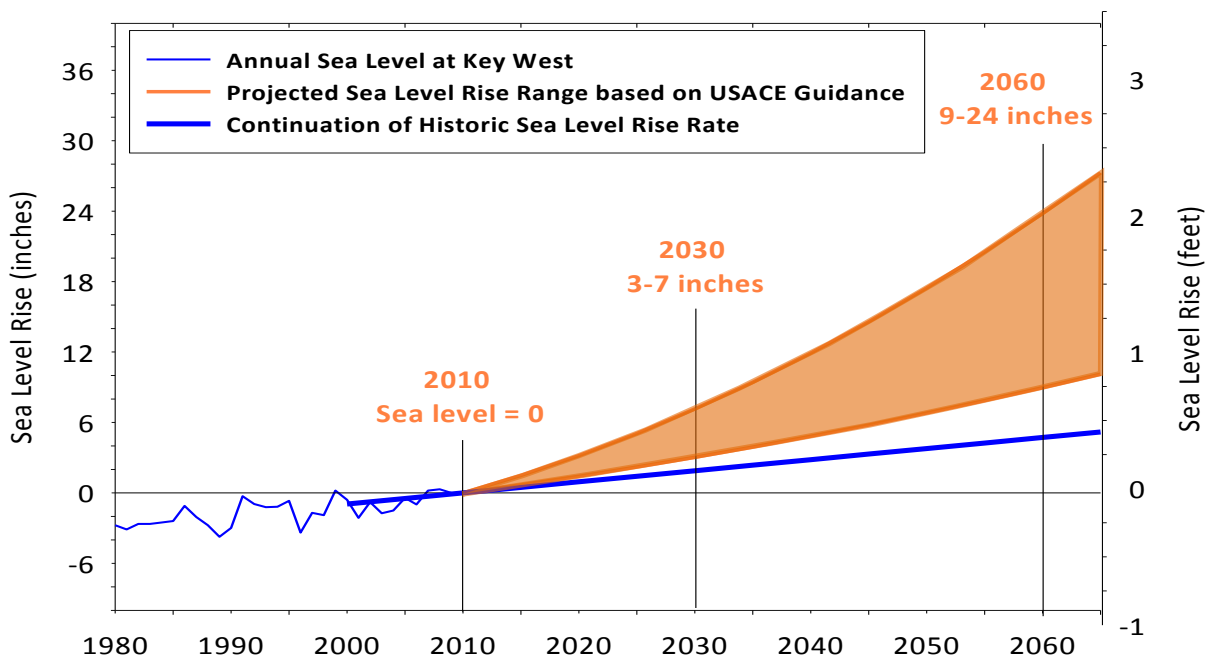


Figure 1 - Unified Southeast Florida Sea Level Rise Projection for Regional Planning Purposes - This projection is calculated using the United States Army Corps of Engineers Guidance (USACE, 2009) intermediate and high curves to represent the lower and upper bound for projected sea level rise. The Key West tidal data shows current trends in the recent past and the historic rate projected into the future.

Their objective was to work toward developing a unified SLR projection for the Southeast Florida region for use by the Compact Counties and partners for planning purposes, to aid in understanding potential vulnerabilities and to provide a basis for outlining adaptation strategies for the Southeast Florida region.

of 2010 for sea level equals zero and two planning horizons, including 2030 (USACE: 3-7 inches) and 2060 (USACE: 9-24 inches). The Work Group agreed not to project beyond the 2060 planning horizon at this time. The shorter term planning horizons are critical to develop the Regional Climate Action Plan and these initial scenarios will be used for continued planning purposes, and to explore infrastructure options and design and adaptation strategies. The Work Group recommends that the projection should



be reviewed and possibly revised in two years (2012). As scientists develop a better understanding of the potential sea level rise at the end of the century, the SE Florida community will need to adjust and adapt to the changing conditions.

### ***Joint Policy Positions***

The Policy Advisory Team collaborated for several months to draft the 2011 State and Federal Energy and Climate Legislative Program adopted by the partner County Commissions. Priority attention in the program was on seeking federal funding for a SE FI regional adaptation pilot project and legislation that recognizes, in law, a definition of regional Adaptation Action Areas. This Legislative Program will serve as the guidance for partner counties advocacy in Washington, DC and Tallahassee on regional issues such as renewable energy, climate mitigation and adaptation, and mutual funding for the Energy Efficiency and Conservation Block Grant Program.

### ***2010 Regional Climate Leadership Summit***

To continue the call to action and comply with the final directive of the Compact, Miami-Dade County hosted the 2010 SE FI Regional Climate Leadership Summit on October 29, 2010. The morning session highlighted the need for local actions, demonstrated



the progress and momentum of the Compact, and sought to engage municipalities to support the Compact activities. The afternoon session provided technical training on climate education, developing climate adaptation programs, and greenhouse gas

emissions inventories. Monroe County volunteered to host the 2011 Summit. <http://green.miamidade.gov/climatechangesummit.htm>

### **RESULTS/SUCCESS OF THE PROGRAM**

The accomplishments of the Regional Climate Compact have occurred using internal human resources and external volunteer partnerships. Recognizing the importance of furthering the initiatives and achieving the goals of the Climate Compact, each county designated two members to serve on the Staff Steering Committee along with a representative from the SFWMD. Two-to-four additional staff from each county was assigned to aid in logistics and coordination. The Steering Committee meets monthly, either in person, or by videoconference or teleconference, to reduce travel time and expenses.

To ensure the quality development of the various elements of the Compact, staff experts in the specific area were assigned to the respective technical work groups. This included one-to-two participants from each County on the Policy Team; one-to-two GIS professionals and other technical staff from Compact Counties and SFWMD on the Vulnerability Work Group; and one-to-two contributing members of each County on the GHG inventory workgroup. Completion of each element required three-to-four meetings to share experiences, establish parameters and consolidate data. Work products were assigned to staff from each county to complete individually and provide electronically to the project coordinator to consolidate into a convenient shared format.

Invaluable support was gained through partnerships with CLI for all aspects of implementation, and with ICLEI for the GHG inventory and the 2010 Summit. Additionally, voluntary support was provided by volunteers and supporters from Florida Atlantic University (FAU), The Nature Conservancy, NOAA-CSC, U.S. Geologic Survey (USGS), The University of Miami (UM), Florida International University (FIU),

NOAA- Atlantic Oceanographic & Meteorological Lab (AOML), and USACE on SLR Projection and Vulnerability Analysis.

Implementation of the Compact has required collaboration across the four counties in the region



Representatives of the four Compact Counties accept the ICLEI “Innovation to Institutionalize Sustainability” Award: (left to right) Commissioner Seijas (Miami-Dade), Mayor Carlos Alvarez (Miami-Dade), Cyrus Bhedwar (ICLEI), Commissioner Jacobs (Broward), Commissioner Neugent (Monroe), Commissioner Sorenson (Miami-Dade), County Administrator Weisman (Palm Beach), and Commissioner Murphy (Monroe).

as well as support from various regional and national entities. The formation of the Staff Steering Committee and a baseline assessment of Compact Counties’ human, technical and policy resources set the stage for implementation. With the help and support of national experts from NOAA, academia, the USGS and the USACE, we are developing cutting edge methods and techniques for inundation mapping. Each County has contributed to performing a vulnerability analysis to provide a picture of risk for the southeast Florida region. The regional greenhouse gas emission inventory will provide a benchmark for future mitigation efforts. A single sea level rise projection allows the region to focus on a unified expectation for the future upon which to base adaptation strategies consistent

across borders. The development of joint climate change policies permits the region to advocate for climate change policies and funding with one voice representing 5.6 million residents. The 2011 SE FI Regional Climate Change Leadership Summit marked the milestone of the commitment and demonstrated the will and momentum of the Compact Counties and their municipalities to continue forward with the development of a Regional Climate Change Action Plan.

### **EARLY RECOGNITION**

In September 2010, the Southeast Florida Regional Climate Change Compact was honored with an important award in recognition of “Process Innovation to Institutionalize Sustainability.” ICLEI Local Governments for Sustainability USA, the leading local government association addressing climate change and sustainability, presented the award before an audience of 250 local government leaders and sustainability experts in

Washington, D.C. as part of its biannual Local Action Summit. This award recognizes the landmark agreement between the four counties to coordinate and collaborate regionally on climate change adaptation and mitigation efforts, as well as coordinate state and federal advocacy for responsible climate change policy that is protective of Southeast Florida’s long-term viability. The award was formally presented to all four counties at the 2010 Regional Climate Leadership Summit on October 29, 2010.

The Compact has been receiving much recognition and attention for this unique partnership, as evidenced by the engagement of numerous federal agencies, including NOAA, the USGS, the USACE, and

the EPA. Furthermore, Compact members are frequently invited to speak at meetings and conferences locally and around the country.

## NEXT STEPS

A two-day Staff Steering Committee meeting was held February 3 and 4, 2011, where the work and results of the technical work groups were presented to the Committee members to inform the initial



steps of drafting the regional climate action plan (CAP). Also in attendance at this meeting were Dr. Ken Mitchell, EPA Senior Climate Change Advisor, and Mr. Glenn Landers, Senior Project Manager of Climate Change Studies for the Everglades Division of USACE (Jacksonville District). Their participation provided critical input on state, regional and federal perspectives and priorities. During this meeting, development of the regional CAP was discussed, along with other anticipated activities for the forthcoming year. They include but are not limited to the following:

- Form working groups and actively develop components of the CAP;
- Further refine initial regional greenhouse gas emissions baseline;
- Identify key climate change indicators to track, and leverage federal resources to assist in plan development and implementation;
- Work with technical staff to identify parameters and additional data sets for future, more robust, vulnerability analyses;

- Integrate the work and activities of the Compact with the seven County EPA/HUD Sustainable Communities Grant Project;
- Plan and coordinate the 2011 Climate Leadership Summit to be held in Monroe County in October;
- Continue to collaborate on regional, state, and federal policy as appropriate; and
- Complete a draft CAP by October 2011.

The Compact members and participants look forward to another productive year of regional collaboration and will continue to look for opportunities to bring additional funding and resources to the region for climate change mitigation and adaptation activities.



## **ACKNOWLEDGEMENTS**

### **Staff Steering Committee**

Mr. Roman Gastesi, Monroe County Administrator  
 Ms. Nichole Hefty, Miami-Dade County Dept. of Environmental Resources Mgmt.  
 Dr. Jennifer Jurado, Broward County Environmental Protection and Growth Mgmt. Dept.  
 Mr. Michael Roberts, Monroe County Environmental Resources Dept.  
 Ms. Kim Shugar, South Florida Water Mgmt. Intergovernmental Programs  
 Ms. Susanne Torriente, Miami-Dade County Office of Sustainability/County Executive Office  
 Mr. Jon Van Arnam, Palm Beach County Administrator's Office  
 Ms. Patti Webster, Broward County Environmental Protection and Growth Mgmt. Dept.

### **Compact Technical Advisor and Coordinator**

Mr. Steve C. Adams, Climate Leadership Initiative

### **Additional External Technical Support**

Mr. Jim Murley, Florida Atlantic University  
 Ms. Melissa Stults, ICLEI Local Governments for Sustainability

### **Joint Policy Advisory Team**

Mr. Steve C. Adams, Facilitator, Climate Leadership Initiative

Mr. Todd Bonlarron, Palm Beach County Office of Intergovernmental Affairs  
 Ms. Bonnie Finneran, Palm Beach County Department of Environmental Resources Mgmt.  
 Mr. Roman Gastesi, Monroe County Administrator  
 Dr. Jennifer Jurado, Broward County Environmental Protection and Growth Mgmt. Dept.  
 Mr. Joe Rasco, Miami-Dade County Office of Intergovernmental Affairs  
 Mr. John Reiser, Palm Beach County Department of Environmental Resources Mgmt.  
 Mr. Michael Roberts, Monroe County Environmental Resources Dept.

Ms. Kim Shugar, South Florida Water Mgmt. Intergovernmental Programs  
 Ms. Susanne Torriente, Miami-Dade County Office of Sustainability  
 Mr. Jon Van Arnam, Palm Beach County Administrator's Office  
 Mr. Robert Villar, Miami-Dade County Dept. of Policy and Legislative Issues  
 Mr. Paul Voight, Miami-Dade County Dept. of Environmental Resources Mgmt.  
 Mr. Rich E. Walesky, Palm Beach County Environmental Resources Mgmt. Dept.  
 Ms. Patti Webster, Broward County Environmental Protection and Growth Mgmt. Dept.

### **Regional Climate Change Compact Technical Workgroups:**

#### **Sea Level Rise Projection Consensus Core Workgroup**

Dr. Nancy Gassman, Facilitator, Broward County Environmental Protection and Growth Mgmt. Dept.  
  
 Dr. Leonard Berry, Florida Atlantic University  
 Dr. David Enfield, National Oceanic and Atmospheric Administration  
 Dr. Pat Gleason, Camp Dresser & McKee  
 Mr. Larry Johnson, Palm Beach County Water Utilities Department  
 Mr. Peter Harlem, Florida International University  
 Mr. Barry Heimlich, Florida Atlantic University  
 Mr. Glenn Landers, U. S. Army Corps. of Engineers  
 Dr. Jayantha Obeysekera, South Florida Water Mgmt. District  
 Mr. Joseph Park, South Florida Water Mgmt. District  
 Dr. John Van Leer, University of Miami  
 Dr. Hal Wanless, University of Miami

#### **Regional Inundation Mapping and Vulnerability Analysis Core Workgroup**

Dr. Nancy Gassman, Facilitator, Broward County Environmental Protection and Growth Mgmt. Dept.

Ms. Mairim Avila, Miami-Dade Enterprise Technology Services Dept.  
 Ms. Jenifer Barnes, South Florida Water Mgmt. District Hydrologic & Environmental Systems Modeling  
 Mr. Rod Braun, South Florida Water Mgmt. District  
 Mr. Don Burgess, Broward County Environmental Protection and Growth Mgmt. Dept.  
 Mr. Richard Butgereit, Florida Division of Emergency Mgmt.  
 Mr. Manny Cela, South Florida Regional Planning Council  
 Mr. Bryan Davisson, Monroe County Growth Mgmt.  
 Ms. Nina Goetsch, Broward County Environmental Protection and Growth Mgmt.  
 Ms. Victoria Morrow, Broward County Environmental Protection and Growth Mgmt.  
 Ms. Erin Musgrave, Broward County Environmental Protection and Growth Mgmt.  
 Ms. Beth Norton, Palm Beach County  
 Ms. Dorothy F. Payne, U. S. Geological Survey Florida Integrated Science Center  
 Ms. Marcia Steelman, Miami-Dade County Dept. of Environmental Resources Mgmt.  
 Mr. Kelly Ratchinsky, Palm Beach County  
 Ms. Diana Umpierre, South Florida Water Mgmt. District

**Regional Greenhouse Gas Inventory Technical Core Work Group**

Mr. Steve Adams, Facilitator, Climate Leadership Initiative

Ms. Alicia Bentancourt, Monroe County  
 Mr. Derrick Bradchulis, Miami-Dade County  
 Mr. Mark Finn, Palm Beach County  
 Ms. Maribel Feliciano, Broward County  
 Mr. Rowan Hughes, Palm Beach County  
 Ms. Missy Stults, ICLEI Local Governments for Sustainability

*In addition to the core work group members mentioned above, additional staff and representatives from the four counties and the following organizations provided valuable contributions to the technical workgroups:*

Florida Atlantic University  
 Florida International University  
 National Oceanic and Atmospheric Association – AOML  
 National Oceanic and Atmospheric Association – CIMAS  
 National Oceanic and Atmospheric Association – CSC  
 The Nature Conservancy  
 Nova Southeastern University  
 South Florida Regional Planning Council  
 U. S. Army Corp. of Engineers  
 U. S. Environmental Protection Agency  
 U. S. Geological Survey  
 University of Miami