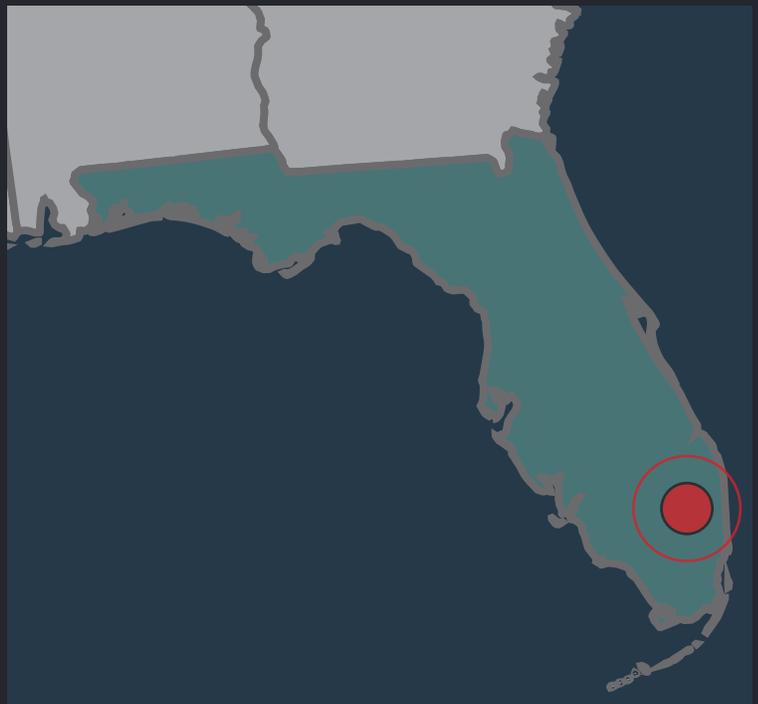




Lessons in Regional Resilience

Southeast Florida Region

The Southeast Florida Regional Climate Change Compact



Lessons in Regional Resilience:

The Southeast Florida Climate Change Compact

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Case Studies in Regional Collaboration: This report is part of a series of six case studies (<http://www.georgetownclimate.org/reports/lessons-in-regional-resilience.html>) that explore lessons that are being learned by climate collaboratives from around the United States that are bringing together local governments and other stakeholders at the regional level to both reduce carbon pollution (mitigation) and prepare for the impacts of climate change (adaptation). These case studies explore the following collaboratives:

- The Los Angeles Regional Collaborative for Climate Action and Sustainability in California
- The San Diego Regional Climate Collaborative in California
- The Capital Region Climate Readiness Collaborative in California
- The Sierra Climate Adaptation and Mitigation Partnership in California
- The Southeast Florida Climate Change Compact in Florida
- The King County-Cities Climate Collaboration in Washington State

Each case study explores the history and development, structure and decisionmaking methods, funding sources, roles and initiatives of each of these climate collaboratives. A synthesis report also explores lessons that can be learned by comparing the efforts of each collaborative on climate policy in their regions.

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Table of Contents

INTRODUCTION	1
CHARACTERISTICS OF SOUTHEAST FLORIDA	2
Physical Threats to the Region Posed by Climate Change	2
The Governance Challenge Posed by Climate Change	2
COMPACT ORGANIZATION	3
Home Rule Legal Authority	3
Compact Agreement	4
Steering Committee	4
Standing and Ad Hoc Work Groups	5
Fiscal Agent	6
THE COMPACT’S KEY ACTIONS	6
Regional Climate Leadership Summits (2009 – present)	6
Legislation (2011 – present).....	7
Unified Sea-Level Rise Projection (2011, updated in 2015).....	8
Regional Vulnerability Assessment (2012).....	9
Regional Climate Action Plan	9
RCAP Guidance Documents (2012 – present).....	10
Providing Technical Assistance to Municipalities (2012 – present)	11
FUNDING & TECHNICAL ASSISTANCE	13
In-Kind Contributions of Staff Time	14
Philanthropic Grant Funding.....	14
Federal Grants.....	14
Long-Term Funding Strategies	15
Leveraging Outside Expertise and Technical Assistance	15
CONCLUSION	15
APPENDIX:	17

INTRODUCTION

In 2009, four counties in southeast Florida – Broward, Miami-Dade, Monroe, and Palm Beach – decided to address the consequences of climate change regionally by voluntarily forming a cross-county collaborative called the Southeast Florida Regional Climate Change Compact (the “Compact”). Established through the ratification of the Southeast Florida Regional Climate Change Compact Agreement (the “Compact Agreement”), the Compact stands out as the first example where U.S. counties voluntarily committed to work at the regional scale to address climate change. So rather than prepare for impacts solely within jurisdictional boundaries, the four Compact counties agreed to work together throughout the southeast Florida region to both reduce greenhouse gas emissions and to build resilience to future climate impacts.

The Compact has brought a diversity of local governments and outside partners to the table to spur regional action on climate change. The Compact is led by a Steering Committee of representatives from the four counties and municipalities within each county including the cities of Hollywood, Key West, West Palm Beach, and Miami Beach (and formerly including Ft. Lauderdale and Boynton Beach). It also includes, as non-voting members, representatives from regional entities such as the South Florida Water Management District, South Florida Regional Planning Council, and the South Florida Chapter of The Nature Conservancy. The Compact works with a non-profit organization, the Institute for Sustainable Communities (ISC), to administer, provide technical, strategic and facilitation support, and serve as the fiscal agent for some grants for the Compact. In 2016, the Compact adopted a formal interlocal agreement (under Ch. 163.01, Florida Statutes) committing each county to appropriate \$100,000 over the course of two years to be used for Compact support. The Compact brings in additional support, input, and technical assistance from a range of stakeholders and other experts including representatives from federal agencies (e.g., the National Oceanic and Atmospheric Administration (NOAA), U.S. Army Corps of Engineers (Corps), and U.S. Environmental Protection Agency (EPA)), nonprofit organizations (e.g., The Nature Conservancy (TNC)), and academic institutions (e.g., Florida Atlantic University (FAU)).

Figure 1: Counties involved in the Compact

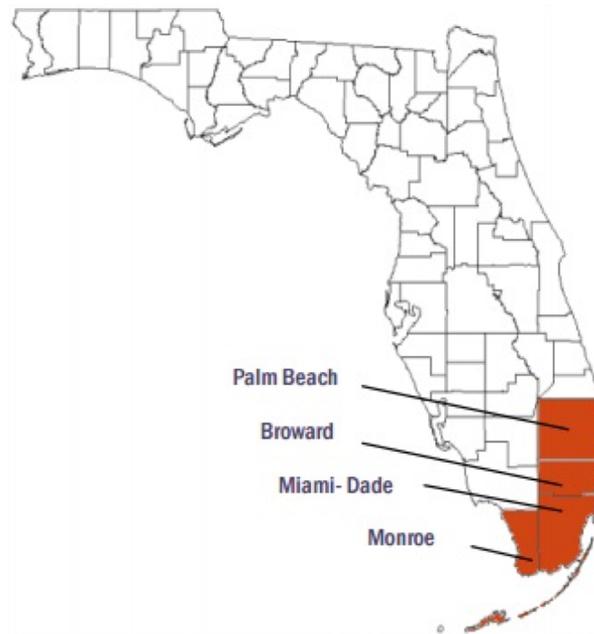


Image Credit: Institute for Sustainable Communities

The Compact’s main successes, to date, have been in coordinating adaptation efforts within and across the region. The Compact helped the four counties develop a uniform projection for sea-level rise and a vulnerability assessment for the region. Through the Compact, the counties coordinated to develop legislative priorities and were successful in getting legislation passed (Fla. Stat. § 163.3164 (2011)), which allows local governments to establish “Adaptation Action Areas” in local land-use plans to direct state and local investments. The Compact also developed a *Regional Climate Action Plan (RCAP)*, which sets out 110 recommendations for different entities in southeast Florida to enact in order to become resilient to climate impacts. Now, the recommendations of the *RCAP* are being implemented within the four counties and among the municipalities and utilities in the region.

Since 2012, the Compact has also engaged municipalities in the region through the *Mayor's Climate Action Pledge (MCAP)*, which is a voluntary agreement where the signatories pledge to support the Compact.

The efforts the four counties have taken to address climate change can be instructive for other regions seeking to develop cross-jurisdictional frameworks to prepare for climate change at the regional scale.

CHARACTERISTICS OF SOUTHEAST FLORIDA

Physical Threats to the Region Posed by Climate Change

The Compact was formed because of concern amongst local officials about the threats that climate change poses to the southeast Florida region, which is particularly vulnerable. The counties in southeast Florida are surrounded by water: the Atlantic Ocean to the east and south and the Gulf of Mexico to the west.¹ Especially vulnerable parts of the region include the Florida Keys, an island chain connected by 106.5 miles of low-lying roads and bridges,² and the Everglades National Park, a flat freshwater preserve comprising the southwestern border of the Southeast Florida counties and sitting at the edge of rising ocean waters.³

Southeast Florida is also highly populated. It is home to 6 million people, which is 33 percent of the total population of the state.⁴ The biggest urban centers have high concentrations of development in close proximity to the coast, including the cities of Miami, Fort Lauderdale, and West Palm Beach.⁵

Southeast Florida is also an engine of the state's economy. The region produces 30 percent of Florida's gross domestic product.⁶ Over 15 million people visited the region in 2012,⁷ many drawn to the region's natural resources like coral reefs, mangroves, and the Everglades, all of which are threatened by climate change.

Climate change will affect the region from sea-level rise, increasing temperatures, saltwater intrusion, drought, and more intense hurricanes. The region is anticipated to see an additional 3-7 inches of sea-level rise by 2030, and 9-24 inches by 2060.⁸ Four billion dollars in assets in the region are exposed to impacts from coastal flooding due to sea-level rise.⁹ Assets at risk include high value coastal properties that make significant contributions to the region's tax base, and roads, highways and bridges.¹⁰ Almost two and a half million people in the region live less than four-feet above sea level.¹¹ The risks posed by sea-level rise will also be exacerbated by more intense hurricanes; storm surges will be driven farther inland causing impacts to larger swathes of land.¹²

The region's geology of porous limestone creates additional risk by allowing underground saltwater intrusion. The region's porous bedrock makes the development of coastal protection, like sea walls, infeasible.¹³ Saltwater intrusion also contaminates freshwater aquifers, which will lead to fewer sources of drinking water.¹⁴ The impacts to potable water sources will be exacerbated because the region is also projected to suffer from increasing instances of drought due to less frequent precipitation and drier winters as a result of climate change.¹⁵

The Governance Challenge Posed by Climate Change

Recognizing that climate change impacts will not respect jurisdictional boundaries, the four counties saw the need to coordinate local policymakers in their region. Coordination presents a unique challenge because hundreds of different governing entities make decisions on behalf of the region's residents, including: 4 counties, 108 municipalities, 48 different water management agencies, and 28 transportation agencies.¹⁶ More than 100 entities (municipalities, state government, federal government, regional planning organizations, etc.) exercise power over land-use decisions, transportation planning, government operations, natural resource protection, investment, and other decisions.¹⁷

Prior to 2009, the Compact counties were addressing climate impacts individually but county leaders quickly recognized the need to coordinate their efforts when they were visiting Congressional leaders in Washington DC in the spring of 2009. Each county had invested significant resources developing carbon emissions baselines and sea-level rise scenarios, but when county leaders were discussing the challenges posed by climate change to their

region with legislative staff each county was citing different numbers and projections.¹⁸ This left Congressional staff unpersuaded by the conflicting projections, and exposed the need for the counties to work together and speak with one voice.¹⁹

Elected officials from the four counties worked to convene a regional climate summit to for unified action.²⁰ In 2009, the four counties jointly held the first Regional Climate Leadership Summit (“2009 Summit”) in Broward County where they discussed potential impacts to the region and identified the need for a regional approach to prepare for impacts and mitigate emissions.²¹

After the 2009 Summit, the counties coordinated to draft the Southeast Florida Regional Climate Change Compact (Compact Agreement), a document that formalized the collaboration and its purpose. By January 2010, each county had ratified the Compact Agreement (by unanimous vote)²² voluntarily agreeing to collaborate on climate adaptation and emissions reductions, to commit staff resources to the Compact, and to develop joint positions on climate policy.²³

This case study will address how the Compact helped Southeast Florida successfully forge a regional collaborative that is driving preparedness activities throughout the region. This case study explores:

- How the Compact was formed, and its governance structure and staffing.
- How it engages with a diversity of stakeholders through work groups and regional summits.
- How the Compact has raised funds through grants from private foundations and federal agencies.
- How it has helped localities understand potential threats to the region by developing uniform climate change projections and a vulnerability assessment.
- How it has informed the development of state legislation to promote adaptation.
- How it has helped to coordinate adaptation efforts across localities by developing a regional climate action plan (RCAP) and providing implementation support to municipalities.

The purpose of this case study is to help other collaboratives around the country learn from the lessons of the Florida experiment for developing a regional approach for responding to the threats posed by climate change.

COMPACT ORGANIZATION

The Compact is not a formally recognized legal entity—it is not a non-profit organization or municipal corporation—which means that it has no official legal status. This has two consequences for the Compact: First, the Compact has no legal authority and actions taken by the Compact Steering Committee have no legal effect, meaning that recommendations made by the Compact must be adopted and ratified at the individual county and municipal level.²⁴ Second, the Compact historically had no dedicated source of funding and no means by which to take in grants or other sources of funding. To fund the Compact’s efforts, grants must be funneled through individual local government members of the Compact, or through their non-profit fiscal agent, the Institute for Sustainable Communities (ISC).²⁵

This section discusses how the Compact is organized, how the counties collectively make decisions through a Steering Committee, how they engage municipalities and other partners, and how they leverage the support of a non-profit fiscal agent, ISC.

Home Rule Legal Authority

The Compact relies on the powers delegated to its constituent counties and municipalities. Florida is a home rule state, meaning that local governments are delegated broad powers from the Florida Constitution and legislature to administer their own affairs and regulate for the public health, safety and welfare of their communities.²⁶

In Florida, counties have the power to make any law as long as it does not conflict with federal or state law.²⁷ Express powers of counties include the ability to enter into agreements, hire and direct staff, tax and spend revenues, and perform any function not prohibited by state law.²⁸ Municipalities in Florida also have broad rulemaking authority: they can pass laws that have a municipal purpose²⁹ so long as the law does not conflict with federal, state, general, or charter county law.³⁰ Municipalities' powers include the ability to render services, conduct municipal government duties, and regulate the use and development of land.³¹

In practice, municipalities are the actors primarily responsible for implementing many of the Compact's climate adaptation recommendations—particularly those recommendations involving the regulation of land use. In charter counties,³² the county charter can describe which county ordinances prevail if there is a conflict with municipal ordinances but charter counties leave regulation of land use to the municipalities. The county only directly regulates development in unincorporated areas within its borders. Once a municipality incorporates,³³ the municipality regulates the use and development of land within its boundaries.³⁴ In Broward County, for example, only four percent of the land is unincorporated.³⁵ As a result of these divisions of power, the Compact's success in driving implementation of adaptation will be dependent on actions taken by municipalities within the region. Accordingly, much of the Compact's implementation process has focused on building municipal capacity.

Compact Agreement

The four counties agreed to collaborate by drafting and ratifying a Compact Agreement, which sets out the goals for the collaborative, including climate resilience and adaptation.³⁶ Each of the counties ratified the Compact Agreement between December 2009 and January 2010 through their county commissions, which voted unanimously to join the Compact. By signing the Agreement, each county agreed to:

1. collaborate on joint policy positions and position statements to the U.S. Congress and Florida legislature (Sections 1-4 of the Compact Agreement);
2. commit appropriate staff resources and expertise to the Compact (Sec. 5);
3. jointly develop a Regional Climate Change Action Plan containing mitigation and adaptation strategies (Sec. 6); and
4. host a regional climate change summit (Sec. 7).

By defining these high-level goals in the Compact Agreement, the counties were able to establish clear action items for how they would collaborate on climate policy. This clear direction allowed the counties to achieve early successes. In the first five years, the Compact counties have successfully accomplished each of these initial goals laid out in the Agreement.

Steering Committee

A Steering Committee was created to make decisions on behalf of the Compact, and the voting members of the committee are the county and municipal decision-makers that have primary authority to implement any recommendations developed through the Compact. The Steering Committee includes:

- voting members³⁷ – one or two representatives from each Compact county (each county receives 2 votes that can be distributed between 1 or 2 representatives)³⁸, four municipal representatives with one vote each (one municipal representative from each Compact county),³⁹ and
- non-voting members – including representatives from the South Florida Water Management District (SFWMD), the South Florida Regional Planning Council (SFRPC), and The Nature Conservancy (TNC) in South Florida.⁴⁰

Local representatives on the Steering Committee are typically senior staff of an environmental agency within the county or municipal government (e.g. natural resources or sustainability departments).⁴¹ The make-up of the Steering Committee was driven by the Compact's focus on developing feasible climate resilience strategies for

implementation at the municipal and county levels. Because only staff of the county and municipal governments can vote on the Steering Committee, this ensures that the recommendations coming out of the Compact will have the buy-in of the local governing bodies that will be needed to implement those actions.

The Steering Committee normally operates by consensus, but members vote when the formality of a vote is deemed appropriate.⁴² ISC organizes, chairs, and facilitates regular Steering Committee meetings (meetings were held monthly and are now every two weeks). A typical meeting involves planning workshops or upcoming events, briefings on Work Group products, and discussing relevant pending state and federal legislation. ISC is able to provide an unbiased facilitator role for the Compact as a whole because it is not affiliated with any particular county or municipality in the region.⁴³

Standing and Ad Hoc Work Groups

To accomplish more specific projects and tasks, the Steering Committee delegates projects to Standing and Ad Hoc Work Groups. Standing Work Groups have a perpetual role within the Compact, while Ad Hoc Work Groups are formed for a singular, specific purpose and often disband after that purpose is completed.

At the start of the Compact, three Standing Groups were formed to lead Compact initiatives (the Policy Team, Summit Planning Team, and Regional Climate Team), and new Standing Work Groups were established as the Compact evolved.

- *The Policy Team* prepares state and federal climate policy position statements, drafts proposals and directives, monitors legislative actions, and prepares deliverables for the annual summit.⁴⁴
- *The Summit Planning Team* plans and coordinates the annual regional climate summits, which involves developing the summit theme, planning logistics and speakers, and developing a communication plan for summit publicity, among other tasks.⁴⁵
- *The Regional Climate Team* was formed to develop and lead implementation of the Regional Climate Action Plan. The Team includes members of the Steering Committee, but also representatives from outside entities like the US Army Corps of Engineers (USACE), Environmental Protection Agency (EPA), Florida Department of Transportation (FDOT), and Metropolitan Planning Organizations (MPOs).⁴⁶
- *The Shoreline Resilience Working Group*⁴⁷ (Shoreline Work Group) collaborated with the Florida Chapter of The Nature Conservancy to develop a reference guide called Nature-Based Coastal Defenses in Southeast Florida (Coastal Defense Guide). The Coastal Defenses Guide compiled seven case studies examining nature-based restoration projects that were implemented across the Southeast Florida region to mitigate flooding and shoreline erosion.⁴⁸
- *The Municipal Work Group* is led by the four municipal representatives to the Compact and leads outreach and engagement with municipalities in each of the four Compact counties.

The Standing Work Groups help the counties achieve the goals set out by the Compact Agreement, because the representatives can focus on the specific roles delegated to their work group—pursuing legislation or policy objectives, convening the annual summit, developing and implementing the RCAP, or leading outreach and engagement with municipalities in the region.

In order to complete specific technical projects, the Compact also forms Ad Hoc Work Groups on an as-needed basis. These groups often include county and municipal staff as well as outside experts who undertake specific projects and studies, which are described in more detail in the following sections.

- *The Technical Ad Hoc Work Group*⁴⁹ (Technical Work Group) was responsible for developing a unified sea-level-rise projection among the four counties for planning purposes. This work group released its

findings first in April 2011,⁵⁰ and was reconvened in spring 2015 to develop updated sea-level rise projections⁵¹ (published in October 2015).⁵²

- *The Compact Inundation Mapping and Vulnerability Work Group*⁵³ (Vulnerability Work Group) was formed by the Steering Committee in early 2010 to perform a regional vulnerability assessment using the unified sea-level rise projection.⁵⁴ This team sunset upon the completion of the vulnerability assessment in August 2012,⁵⁵ but will be reconstituted to support update of the RCAP in 2016.
- *The Regional Indicators Work Group* was formed to establish indicators of a changing climate in the Southeast Florida region.⁵⁶ In 2016, the work group announced that the work group will monitor changes across nine indicators: sea-level rise, nuisance flooding, greenhouse gas emissions, saltwater intrusion, public health/heat index, severe storms, sea surface temperature, precipitation and drought, and plant hardiness.⁵⁷
- *The Regional Greenhouse Gas Inventory Work Group* was formed to establish a regional protocol for tracking greenhouse gas emissions and to establish baseline levels of GHG emissions across the Compact counties focusing on the sectors of greatest interest to the Compact members. In November 2011, the work group published a baseline inventory for the period 2005-2009.⁵⁸

The Compact had the capacity to produce a range of scientific studies to inform the adaptation work of the region because of the expertise they were able to draw in through the various Work Groups. The Work Groups involved experts from federal agencies, universities, and NGOs. For example, the Technical Work Group involved representatives from NOAA, USACE, and local academic institutions. By involving these technical experts, the Compact was able to develop robust, scientific research to help the individual local governments better understand the risks posed by climate change. By creating a platform for these agencies to provide support that would benefit the region as a whole, the Compact was also able to bring in scientific expertise from individuals and agencies that may not have engaged with each of the counties on an individual basis.⁵⁹

Fiscal Agent

Because the Compact is not a formal legal entity yet, it must work through its individual members or a fiscal agent, the Institute for Sustainable Communities (ISC), to take in funding.⁶⁰ ISC, as a 501(c)(3) tax-exempt organization, can receive private, tax-exempt grants on behalf of the Compact. Over the years, ISC has received philanthropic funding from the Kresge Foundation to support the administration of the Compact, and development and implementation of the RCAP.⁶¹

THE COMPACT'S KEY ACTIONS

The Compact has played a number of significant roles that have facilitated adaptation in the region. In this section we describe the roles the Compact has played, and how these roles have helped the individual counties and municipalities in the region prepare for climate change.

Regional Climate Leadership Summits (2009 – present)

Since its inception in 2009, the four counties have come together annually to host a regional climate summit. The initial 2009 summit focused on discussing the climate threats facing the southeast Florida region and developing a platform for unified action among the counties.⁶² As a result of the 2009 summit, the four county commissions ratified the Compact Agreement in January 2010.⁶³ Since 2009, the Compact has hosted a summit annually, most recently hosting its seventh summit in December 2015 in Key West, FL (the Compact's eight summit had to be cancelled as a result of Hurricane Matthew). The main purposes of the summits are to engage elected officials, highlight achievements, bring outside expertise to the region, and produce specific deliverables.

For example, at the 2011 summit, the Steering Committee released a draft of the *RCAP* and sought public comment.⁶⁴ The 2014 summit held October 1-2, 2014 in Miami Beach, titled “Regions Connect → Global Effect,” drew 650 people.⁶⁵ The 2014 Summit featured panels on resilient redesign and keynote addresses by representatives from the EPA and the White House Council on Environmental Quality.⁶⁶

The summits also serve an important role in bolstering support for the Compact. They bring distinguished speakers to southeast Florida, including representatives from the White House and EPA, and even international climate experts. The positive attention brought to the region by the summits has been critical to ensuring continued bipartisan support for the Compact from elected officials in the region.⁶⁷ The summits also help to inform local, state, and federal officials of the efforts underway in the region to prepare for future climate change.

Legislation (2011 – present)

Through the Compact Agreement, the counties have agreed to coordinate on climate policy.⁶⁸ Since 2011, the Compact has prepared a legislative program each year, which lists federal and state legislation that the Compact supports or opposes.⁶⁹ For example, in its 2015 legislative program, the Compact supported legislation to create incentives for considering climate impacts to the Everglades.⁷⁰ The Policy Team drafts the legislative programs, and the Steering Committee approves them.⁷¹ The Compact then presents the year’s legislative programs to each county commission for adoption into each county’s comprehensive legislative program.⁷² This allows the counties to speak with one voice in support or disapproval of specific legislation flagged in the Compact’s legislative programs.⁷³

The Compact’s work to inform policy spurred the passage of state legislation enabling consideration of sea-level rise in local comprehensive plans. The Compact’s 2011 legislative program included support for state legislation creating Adaptation Action Areas (AAAs), a designation local governments can include in local comprehensive plans for areas that are especially vulnerable to coastal flooding due to climate change.⁷⁴ Based upon the Compact’s legislative program, each of the four counties ratified legislative programs supporting the state bill. The Compact’s Policy Work Group drafted legislative language for AAAs to amend an existing bill that was being contemplated by the state legislature to amend the state’s Community Planning Act. The Florida Legislature enacted the bill on May 8, 2011, with the provisions authorizing optional designation of AAAs by local government.⁷⁵ After the Community Planning Act passed, several members of Florida’s Congressional Delegation⁷⁶ (Florida’s federal Senators and House Representatives) signed a letter voicing support of an AAA designation in federal law, but this designation has yet to be integrated into any federal programs. In 2015, additional legislation was passed to *mandate* that local governments consider sea-level rise in the coastal management element of their local comprehensive plans.⁷⁷

Adaptation Action Areas

In 2011 the Florida legislature passed the Community Planning Act to specifically allow communities to designate “Adaptation Action Areas” (AAAs) in their local comprehensive plans. AAAs are defined as areas that experience flooding due to extreme high tides and storm surge and are vulnerable to the impacts of rising sea levels. Criteria for designating an AAA may include areas at or near mean higher high water, areas with a hydrological connection to coastal waters, and areas designated as evacuation zones for storm surge. Broward County and Fort Lauderdale are developing criteria for further specifying AAAs to ensure that the areas of highest vulnerability are being prioritized for resilience investments. AAA designations, allow local governments to adopt policies and direct resources to increase the resilience of that area to future sea-level rise. Broward County amended its comprehensive plan to include an AAA designation and identified areas at risk of inundation under a 2-foot sea-level rise scenario. The plan recommends policies to discourage new development in these areas. Fort Lauderdale in Broward County is also undertaking a pilot project for designating AAAs in a local comprehensive plan and using the AAA designation to inform capital improvement planning. See Fort Lauderdale, *Adaptation Action Areas Case Study*, available at https://southeastfloridaclimatecompact.files.wordpress.com/2014/08/aaa-fort-lauderdale-case-study-draft-8_23.pdf. Based upon a 2015 study, of the eight jurisdictions that have adopted AAA’s six are in the Southeast Florida region. (Markell at 13).

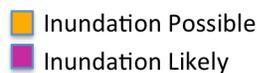
Unified Sea-Level Rise Projection (2011, updated in 2015)

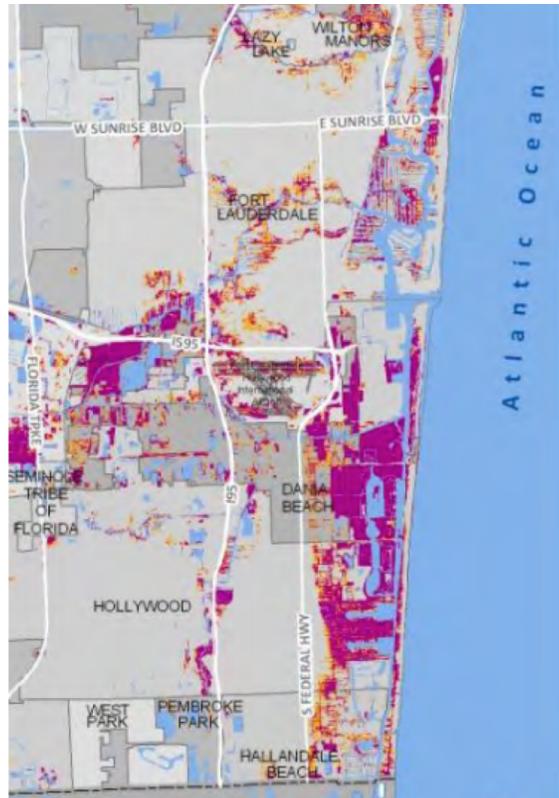
The Technical Work Group developed a unified sea-level rise projection for the entire southeast Florida region and updated these projections in 2015. The work group reviews the most up-to-date sea-level rise projections for the region and current scientific literature, including ice melt projections by the Intergovernmental Panel on Climate Change and academic papers. Updated sea-level rise projections for the region were based on the most recent guidance from the U.S. Army Corps of Engineers (Corps) and the National Oceanic and Atmospheric Administration (NOAA).⁷⁸ In 2011, based upon the Technical Work Group’s recommendations, the Compact adopted a local projection of 3 to 7 inches of sea-level rise by 2030 and 9 to 24 inches by 2060 in the region.⁷⁹ In 2015, these projections were updated with recommendations that decision-makers use a projection of 6 to 10 inches of sea-level rise by 2030; 14 to 26 inches by 2060; and 31 to 61 inches by 2100 (relative to 2015).⁸⁰ The 2015 *Unified SLR Project* also recommends use of “upper curve” projections for critical infrastructure with a design life of greater than 50 years of 34 inches by 2060 and 81 inches by 2100.⁸¹ It also includes guidance for local decision-makers, planners, designers, engineers, and developers on how to use the projections.⁸² The group is slated to revisit these projections every four years, based upon updated science on sea-level rise.⁸³

Regional Vulnerability Assessment (2012)

The Compact developed a Vulnerability Assessment,⁸⁴ which assessed the risk of flooding under one, two, and three-foot scenarios of sea-level rise in the four Compact counties including the Florida Keys.⁸⁵ The Vulnerability Assessment identified critical assets that would be affected within each county at the different levels of sea-level rise, including: roads, bridges, schools, hospitals, police stations, fire stations, evacuation routes, water supply facilities, wastewater infrastructure, and natural resource areas.⁸⁶ The vulnerability assessment was a necessary prerequisite to the Compact's work to develop specific recommendations for how counties and municipalities in the region can adapt to the impacts of sea-level rise. The Compact plans to update the vulnerability assessment as it develops a second iteration of the Regional Climate Action Plan, described in the section below.

Figure 4: *Vulnerability of Broward County Under a 3-Foot Sea-Level Rise Scenario*


■ Inundation Possible
■ Inundation Likely



Regional Climate Action Plan (2012)

After completing the scientific studies, the Compact set about developing a strategic plan for responding to the threats posed by climate change to the region through the development of a *Regional Climate Action Plan (RCAP)*. The *RCAP* provides recommendations for voluntary steps that the counties and municipalities in the region can take to both reduce emissions and adapt to climate change.⁸⁷ For purposes of this case study, we focus on the *RCAP*'s adaptation recommendations. The *RCAP* helped local and regional entities coordinate their response to impacts and ensure that the response of individual jurisdictions did not conflict with other policies or harm other jurisdictions in the region. All four counties have ratified the *RCAP* with unanimous votes in their respective County Commissions.⁸⁸

To write the *RCAP*, the Steering Committee convened the Regional Climate Team, which was broken into three subgroups: land and natural systems, built environment, and transportation. These subgroups developed recommendations,⁸⁹ which a Super Committee then distilled into 110 Action Steps in seven sections in the *RCAP*. The seven sections include: sustainable communities and transportation planning; water supply, management and

infrastructure; natural systems; agriculture; energy and fuel; risk reduction and emergency management; and outreach and public policy.

Approximately 70 out of the 110 steps pertain to climate adaptation while the rest relate primarily to mitigation. Examples of adaptation recommendations in the *RCAP* include:

- “Revise building codes and land development regulations to discourage new development or post-disaster redevelopment in vulnerable areas.” (SP-10)
- “Designate... ‘Restoration Areas’ to identify undeveloped areas for purposes of environmental restoration, dune restoration, agriculture, conservation of natural resources or recreational open space, or as stormwater retention areas.” (SP-13)
- “Modify or develop new design standards for transportation infrastructure located in identified vulnerable areas to include environmentally supportive road materials, bridge design, elevation, and stormwater management.” (SP-15)
- Inventory wastewater, stormwater, and water supply systems, assess impacts from climate change, and develop adaptation strategies for high-risk utilities. (WS-1)
- Develop an integrated water management plan to consider stormwater use and disposal, alternative water supplies, wastewater disposal and reuse, and water conservation measures. (WS-7)
- Promote land acquisition programs to conserve a diversity of natural areas, protect open space, and create buffer areas that increase the adaptive capacity of existing natural areas. (NS-2)
- “Coordinate living shorelines objectives at a regional scale to foster use of natural infrastructure (e.g., coral reefs, native vegetation and mangrove wetlands) instead of or in addition to grey infrastructure (e.g., bulkheads).” (NS-7)
- Maintain and restore urban tree canopy. (NS-14)
- Provide affordable water to agricultural users. (AG-5)
- “Implement and enforce strong building codes... to mitigate against impacts of flooding, severe winds, and sea level rise.” (RR-7)

The majority of the recommendations identified in the *RCAP* require local government action. For example, the *RCAP* calls for revisions to land use plans (SP-8), the incorporation of AAAs into municipal and Comprehensive Plans to prioritize adaptation funding for those areas (SP-3), and other measures that require local authority to implement.⁹⁰ Generally, counties leave land-use planning up to their municipalities.⁹¹ Therefore the Compact must rely on and support municipalities to implement many of the *RCAP* recommendations.

The *RCAP* provides an overarching framework for guiding local decision-making on adaptation. It is meant to be a “living document,” and the Compact Agreement calls for the plan to be updated every five years.⁹² Accordingly, the Compact is gearing up to develop the second version of the *RCAP* by fall of 2017.

RCAP Guidance Documents (2012 – present)

The Compact is also helping to ensure local implementation of the action steps recommended by developing guidance documents. The guidance documents are intended to assist county and municipal policymakers, administrators, and program staff. ISC produced the guidance documents for the Compact with funding from the Kresge Foundation, with support from Compact members and outside experts.⁹³ These guidance documents include:

- *Implementation Guide* – ISC developed a guide to help counties and municipalities implement the 110 action steps recommended by the *RCAP*.⁹⁴ The guide provides timelines for when Compact counties and

municipalities should begin implementation of the step. It also identifies potential partners and funding sources, describes any policy and/or legislative changes needed, and provides recommendations for how the counties can track their progress.

- *Integrating Climate Change and Water Supply Planning in Southeast Florida* – The Broward County Environmental Protection & Growth Management Department wrote a guide to help local governments and water utilities consider the effects of climate change on water supply in planning documents.⁹⁵ The guide addresses how sea-level rise, saltwater intrusion, and extreme weather could affect water supply infrastructure investments. The guide looks at potential options for addressing climate impacts to water supply including diversifying water supply systems and adapting stormwater and wastewater infrastructure systems.⁹⁶ It includes model goals for water utilities and local governments to implement. For example, the guide calls for utilizes to “ensure the resiliency of existing and future water resources, water and wastewater infrastructure to the impacts of climate change for the protection of water quality, flood damage and water shortages.”⁹⁷ The guide also highlights sections of the Florida Statutes that are useful when planning for climate impacts related to water supply and infrastructure, including the Adaptation Action Areas allowed by the amendments to the Community Planning Act.⁹⁸
- *Regional Impacts of Climate Change and Issues for Stormwater Management* – This guide was developed to help county and municipal decision-makers implement recommendations in the RCAP relevant to stormwater management. The guide describes how climate change and sea-level rise will affect stormwater management practices. It also includes case studies of different projects and best practices for implementing green infrastructure as a strategy for adapting to these changes.⁹⁹
- *Future Implementation Guides* – the Compact partners are also developing additional implementation guidance documents including guides on transportation and energy efficiency in public buildings.

Providing Technical Assistance to Municipalities (2012 – present)

The Compact has increased its efforts to involve municipalities because the group recognizes the critical role municipalities must play in implementing the adaptation actions identified in the RCAP.¹⁰⁰ Although municipalities were not originally included in the Compact Agreement, which was limited to an agreement between the four counties, the Compact is involving municipalities through the *Mayor’s Climate Action Pledge (Pledge)*. The *Pledge* is an agreement through which municipalities pledge to support the Compact and implement the recommendations of the RCAP.¹⁰¹ As of November 2015, 26 of the regions 108 municipalities had ratified the *Pledge*.¹⁰² Municipal representatives have also been included in the Steering Committee (one from each Compact county).

The Compact also hosts workshops to support municipal implementation of the *RCAP* recommendations, in association with ISC. For example, an August 2014 workshop focused on strategies for municipal implementation of Adaptation Action Areas.¹⁰³ The South Florida Regional Planning Council also developed a guidance document to help municipalities incorporate AAAs in local land-use and post-disaster recovery plans.¹⁰⁴ The report includes a range of policy tools that Florida municipalities can use to respond to future impacts from sea-level rise, including setbacks, transferrable development rights, impact fees, and conservation easements, among other policies. More recently, the Compact hosted four simultaneous municipal meetings (one in each county) and connected these meetings via webinar in order to solicit input on how the Compact could better support cities. In the future the Compact plans to host these “listening sessions” quarterly and align the topics discussed with the RCAP implementation workshops going on around the same time.

ISC has also been tracking implementation of the RCAP by conducting municipal surveys; they published a report on the results in February 2015.¹⁰⁵ The report revealed that about half the municipalities in the region have implemented some of the *RCAP* recommendations.¹⁰⁶ The most commonly implemented recommendation include actions to:

- restore or maintain urban tree canopy (recommendation NS-14);
- evaluate the impacts of rising sea levels on groundwater levels, and stormwater and wastewater collection and conveyance systems (WS-4);
- incorporate recommendations from the RCAP into local comprehensive plans (SP-1);
- identify and develop policies for designated Adaptation Action Areas (SP-6 and SP-8).¹⁰⁷

The report also highlights some unique examples of municipal implementation. For example, the City of Miami adopted a City Tree Master Plan setting a goal of increasing the urban tree canopy by 30 percent by 2020, and property owners that remove trees must either replace the tree or pay a fee to a tree trust fund. The City of Key West recently passed a referendum to allow buildings to exceed height restrictions to allow buildings to be elevated to mitigate flood impacts.¹⁰⁸ The City of Pompano Beach connects single family homes to a water reuse system, which saves 70 million gallons of drinking water per year.¹⁰⁹

ISC also surveyed municipalities on how the Compact could further support local implementation of the *RCAP*.¹¹⁰ Small municipalities requested support to connect them with similar-sized municipalities in order to pool resources to implement shared goals. Municipalities also requested:

- funding assistance (e.g., a database to assist municipalities in finding appropriate grants and key contacts for funding);
- technical assistance (e.g., techniques on how to implement *RCAP* recommendations and climate change related programs and policies);
- educational materials (e.g., information on climate initiatives to distribute to elected officials, staff, and residents);
- model policies, ordinances, and resolutions;
- peer-learning opportunities and convenings (e.g., webinars and meetings to keep municipal staff apprised of Compact happenings);
- examples of easy projects that can be implemented with limited staff capacity; and
- additional modeling and mapping to help municipalities assess their vulnerability to impacts.

The Compact is also taking actions to ensure that it is supporting municipal implementation. The group convened a standing work group dedicated to municipal engagement and support. They also developed an online *RCAP* database to help similar municipalities (in terms of size and/or geography) share best practices for implementation.¹¹¹ The database includes case studies and examples of how municipalities are implementing *RCAP* recommendations. Database entries include summary narratives, photos, contact information, and links to the primary source materials (ordinances, plans or other model materials).¹¹²

Case Study of Climate Adaptation in Fort Lauderdale

The City of Fort Lauderdale has been an adaptation leader, in part, because of its involvement with the Compact; the city serves on the Steering Committee as a municipal representative for Broward County. Fort Lauderdale integrated climate change preparedness throughout its entire government. In 2009, Fort Lauderdale came under new leadership with the election of Mayor John “Jack” Seiler. In response to requests that the city streamline its operations, Mayor Seiler consolidated some of the city’s departments and integrated sustainability into every aspect of the government instead of having just one department focused on sustainability. For example, the Department of Transportation became the Department of Transportation and Mobility, which shifted the Department’s focus from vehicular transportation to a broader focus of moving people. Every new job listing for a city government position now includes a sustainability component.

Fort Lauderdale is also piloting AAA designations. In coordination with Broward County, Fort Lauderdale amended its local comprehensive plan to designate AAAs (i.e., areas vulnerable to future sea-level rise) in January 2015. Fort Lauderdale and Broward County are now working together to develop criteria for how AAAs should be designated to ensure the designation is meaningful in driving regulatory and investment decisions.

The city also took concrete actions to increase their resilience after Hurricane Sandy. In 2012, Sandy’s storm surge washed out a portion of the A1A highway in Fort Lauderdale. Rather than rebuild the highway in place as it was, Fort Lauderdale and Broward County worked with the state Department of Transportation (FDOT) to redesign the highway to be more resilient to future sea-level rise. The roadway was rebuilt on pilings reaching 40 feet below the surface to secure the road, and was reduced from four car lanes to two to allow for a seawall and multi-modal enhancements such as pedestrian walkways and bike lanes. The Compact had created a relationship between the city and county grounded in climate preparedness, which helped these jurisdictions incorporate resiliency measures when they rebuilt after the storm.

Finally, the city hosts a website highlighting actions the city is taking to build sustainability and resilience and to give residents ideas for how they can “[green their routine](#).” A GIS-based map highlights examples of how city agencies, businesses, schools, and residents are addressing climate change, conserving energy, and protecting the environment. The map is updated monthly with new examples. One example highlighted on the site is the City Hall’s Orchid Parking Lot that incorporates green infrastructure to manage stormwater runoff, charging stations for electric vehicles, permeable pavement, solar parking meters and other green amenities. The website seeks to inspire other landowners to employ similar techniques.

FUNDING & TECHNICAL ASSISTANCE

Historically, the Compact has no dedicated source of funding to support staff or other technical services. The Compact sustained its activities through a combination of in-kind donations of staff time from each of the counties, technical support from outside entities, and federal and private grant funding. To ensure its long-term sustainability, the Compact is transitioning to a more formal structure and the member counties have developed a cost-share structure through an interlocal agreement to support Compact administration.

In-Kind Contributions of Staff Time

Even before the counties began contributing monetary contributions, each county committed to dedicate staff time in support of the Compact.¹¹³ In-kind contributions included the time of employees to participate in the Compact's Steering Committee and different work groups.

The Compact also benefits from in-kind donations of staff time from non-profits and other entities. ISC provides organizational support to the Steering Committee, acts as a fiscal agent, and helps the Compact implement the *RCAP* through workshops. SFWMD and SFRPC serve as non-voting members on the Steering Committee and have contributed staff expertise to develop the *Unified Sea-Level Rise Projection* and *Regional Vulnerability Assessment*. The Compact has received additional in-kind staff time from federal agencies, universities, and other entities who also contributed time to the development of different Compact work products.

Philanthropic Grant Funding

The Compact also received initial start-up grant funding from the Kresge Foundation that has supported the work of ISC and the development of the *RCAP*.¹¹⁴ ISC applied for the grant on behalf of the Compact and has taken in this funding as the fiscal agent for the Compact. The grant funding has been used to support:

1. A workshops series to teach municipalities how to implement specific recommendations in the *RCAP*.
2. The development of a website and an online database for municipalities to share the action steps they have implemented.
3. The development of communications strategies for adapting to climate change as recommended in the *RCAP* and to support municipal collaboration for implementation of *RCAP* recommendations.
4. Monitoring to track the implementation of adaptation actions and their effectiveness. The results of the monitoring will inform a five-year update of the *RCAP*.

This grant also supports the work of ISC to staff and help administer the Compact. ISC's administrative support includes organizing and facilitating Steering Committee meetings (e.g. framing key decision points), planning semi-annual Steering Committee retreats, providing support to the Work Groups, and spotlighting funding opportunities for the Compact.¹¹⁵

Miami-Dade County, the City of Miami, and the City of Miami Beach were also selected to receive funding and technical assistance through the Rockefeller Foundation's 100 Resilient Cities (100RC) initiative. The region's leadership was cited as one of the reasons that the greater Miami area was selected from more than 325 other applicants to be added to the 100RC network.¹¹⁶

Federal Grants

Individual Compact members have also received federal grants that have been used to support work on behalf of the Compact. The SFRPC received Community Development Block Grant funding from the Department of Housing and Urban Development (HUD) to fund *Seven50: Southeast Florida Prosperity Plan (Seven50 Plan)*.¹¹⁷ *Seven50 Plan* was a 50-year plan developed by a collaboration of seven counties in southeast Florida, including the Compact counties. The *Seven50 Plan* was designed to promote the longevity of the region including climate resilience. Broward County was a sub-grantee and used the funds to develop a Health Impact Assessment for the Compact.¹¹⁸ The Compact or individual members have also received a variety of other federal grants, including: a NOAA Special Merit Competition Grant to the South Florida Regional Planning Commission, Broward County and Ft. Lauderdale to pilot Adaptation Action Areas; a Department of Transportation Climate Resilience Pilot Grant to the Broward Metropolitan Planning Organization to assess regional transportation vulnerabilities in the four-county region.¹¹⁹

Long-Term Funding Strategies

The Compact is considering long-term funding strategies to support its work, and the counties have recently adopted an interlocal agreement committing to appropriate \$100,000 each over two years for Compact administration and to support fundraising from other state, federal, and philanthropic sources.¹²⁰

Leveraging Outside Expertise and Technical Assistance

In addition to garnering additional financial resources, the Compact has succeeded in bringing significant outside expertise and technical assistance to the region. Many federal agencies and NGOs have contributed technical expertise to the region by participating in Working Groups, trainings, or regional summits. Additionally, the Compact has helped to coordinate academic research in ways that will help to fill some of the research needs identified through the Compact. At the 2014 Summit, a signing ceremony was held to formalize collaboration between the Compact and the Florida Climate Institute (FCI), a network of southeast Florida universities researching climate change. The FCI was established to facilitate a streamlined process for coordination between local officials and Florida universities seeking grants for climate projects. When a participating FCI university wants to apply for a grant related to climate change, the Compact can voice support of their grant application and ensure that the research is relevant to local needs. The Compact will, in turn, be more connected to southeast Florida universities with heightened access to the technical expertise they can bring to local planning.¹²¹

CONCLUSION

Since its 2009 formation, the Compact developed an effective governing framework for engaging stakeholders, maximizing funding opportunities, and planning and implementing adaptation strategies at the regional scale. As a result, the Compact provides useful models for how communities can work across jurisdictional lines to adapt to climate change.

Although the Compact itself has no formal powers, it used an agreement between the local governments in the region to set achievable regional goals and a unified agenda that allowed the counties to achieve key early successes. From the start, Compact leadership drew from the county and municipal leaders to ensure that the Compact's recommendations reflected local priorities and that they could be feasibly implemented through local powers. Over time the Compact has provided a venue for building relationships and trust among local decisionmakers. Despite changes in county leadership over the years, the Compact has been able to maintain and grow its momentum as a result of these relationships among county staff that are more directly involved in the Compact's initiatives. The relationships built through the Compact have also played a large part in the group's success at coordinating planning and facilitating implementation across the region's municipalities, and bringing greater attention and funding to the region for adaptation efforts.

Although the Compact's governance and decisionmaking remains largely an effort of the four county governments, the region has seen take-up of the RCAP's recommendations and participation in Compact initiatives by many municipalities. The Compact has facilitated this participation by providing voting seats on the steering committee, encouraging local adoption the MCAP, hosting municipal-focused workshops, and developing a wealth of tools and resources to help municipalities as they integrate climate change into their decisionmaking. This model has allowed the Compact to maintain a manageable size and efficiency in its own decisionmaking while still addressing municipalities' needs and increasing the likelihood of municipal implementation.

The Compact also successfully leveraged outside assistance and expertise. As an NGO without an affiliation to any particular county, ISC was able to help the group set priorities with interests of the region as a whole in mind. ISC, in its capacity as a fiscal agent, was also able to take in philanthropic funding to provide administrative support and technical assistance to the Compact. Using working groups and non-voting members on its steering committee, the Compact has also been able to bring in the expertise of local non-profits like TNC, federal agencies, and other

public entities (like the regional planning commission). The Compact was instrumental in creating a partnership with the Florida Climate Institute that will help coordinate academic research and also ensure that the research results are actionable and can be used by decisionmakers on the ground. By creating ongoing relationships with university partners, the Compact has helped to bring scientific expertise to the region and direct research efforts that are informed by local needs.

The Compact is also transitioning to a more long-term sustainable model for supporting the Compact's work. The success of the Compact is demonstrated by the fact that the Compact counties are now contributing annual appropriations to continue work at the regional scale on climate policy and planning. The Compact has also demonstrated that it can successfully bring in outside funding from philanthropic and federal sources to support specific initiatives. The trust built and the benefits that the Compact has already brought to the region have provided the impetus for the counties' elected officials to ensure that the Compact's work is funded in the future.

Climate change presents a unique threat that crosses silos and jurisdictional lines. To develop an effective response to these threats, communities must figure out how to work together to understand their risks, develop solutions, and avoid conflicts. The Southeast Florida experiment provides a useful model for working on climate adaptation at the regional scale. The Compact has provided an overarching framework that has facilitated local collaboration on the development of climate science and assessments, state and federal legislation, funding opportunities, and a regional climate action plan for responding to future impacts. The Compact demonstrates potential roles that other collaboratives can play in supporting adaptation in their own regions.

APPENDIX: *Acronyms*

AAA – Adaptation Action Area
CDBG – Community Development Block Grant
DEM – Digital Elevation Model
EPA – Environmental Protection Agency
FAU – Florida Atlantic University
FCI – Florida Climate Institute
FDEP – Florida Department of Environmental Protection
FDEO – Florida Department of Economic Opportunity
FIU – Florida International University
HIA – Health Impact Assessment
ISC – Institute for Sustainable Communities
MCAP – Mayor’s Climate Action Pledge
MHHW – Mean Higher High Water
NGO – Non-Governmental Organization
NOAA – National Oceanic and Atmospheric Administration
RCAP – Regional Climate Action Plan
SFRPC – South Florida Regional Planning Council
SFWMD – South Florida Water Management District
USACE – United States Army Corps of Engineers
USGS – United States Geological Survey

ENDNOTES

* This report was written by Sydney Menees and Jessica Grannis. Sydney Menees wrote this report as a second year law student at Georgetown University Law Center enrolled in the Harrison Institute for Public Law. Jessica Grannis is the Adaptation Program Manager for the Georgetown Climate Center and helped supervise, revise, and update this work for the ARCCA collaboratives.

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¹ See *General facts about the Gulf of Mexico*, EPA (Feb. 1, 2015), <http://www.epa.gov/gmpo/about/facts.html>.

² See *Florida Keys Scenic Highway*, FHWA (Feb. 1, 2015), <http://www.fhwa.dot.gov/byways/byways/2555>.

³ See National Park Service, *Everglades Climate Navigation*, <http://www.nps.gov/ever/learn/nature/ccnav.htm> (last visited May 7, 2015).

⁴ See *Southeast Florida Resident Population Estimates and Projections*, SFRPC (Feb. 1 2015), http://www.sfrpc.com/Dick%27s%20Demographics/PopProj_SF3TC3.pdf.

⁵ See *Collaboration Among Counties Improves Vulnerability Assessments*, U.S. CLIMATE RESILIENCE TOOLKIT (Feb. 1, 2015), <https://toolkit.climate.gov/taking-action/collaboration-among-counties-improves-regional-vulnerability-assessments>.

⁶ See Southeast Florida Regional Climate Change Compact Counties, *Regional Climate Action Plan* (October 2012) (document at 2), available at <http://isc.ksepartners.info/wp-content/uploads/2014/09/regional-climate-action-plan-final-ada-compliant.pdf>.

⁷ See *2012 Tourism Statistics*, THE HEART OF FLORIDA'S EMERALD COAST 1, 2 (2012), <http://www.emeraldcoastfl.com/media/894775/2012EmeraldCoastTourismStatistics.pdf>.

⁸ See Technical Ad hoc Work Group (Southeast Florida Regional Climate Change Compact), *A Unified Sea Level Rise Projection for Southeast Florida* (document at iii), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/sea-level-rise.pdf>.

⁹ See *Regional Climate Action Plan* (document at 9).

¹⁰ See Inundation Mapping and Vulnerability Assessment Work Group (Southeast Florida Regional Climate Change Compact), *Analysis of the Vulnerability of Southeast Florida to Sea Level Rise* (August 2012) (document at vii), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/vulnerability-assessment.pdf>.

¹¹ See *Risk and Response: Sea Level Rise Summit*, FAU (Feb. 1, 2015) <http://www.ces.fau.edu/SLR2012/>.

¹² See *Climate Impacts in the Southeast*, EPA (Feb. 1, 2015), <http://www.epa.gov/climatechange/impacts-adaptation/southeast.html#impactscoast>.

¹³ *Why are Miami and its south Florida neighbors so vulnerable to climate change?* USA TODAY See Jeff Goodell, *Why Miami is Doomed to Drown*, ROLLING STONE, June 20, 2013, <http://www.rollingstone.com/politics/news/why-the-city-of-miami-is-doomed-to-drown-20130620>.

¹⁴ See *Impact of Anthropogenic Development on Coastal Ground-Water Hydrology in Southeastern Florida, 1900-2000*, USGS (Feb. 1, 2015), <http://sofia.usgs.gov/publications/circular/1275/saltintrusion.html>. See *Facts and findings: Sea level rise and storm surge threats for Florida*, CLIMATE CENTRAL 1, 2, <http://slr.s3.amazonaws.com/factsheets/Florida.pdf>.

¹⁵ See *Regional Climate Action Plan* (document at 26).

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- ¹⁶ See *Faced with threats from climate change, four Florida counties work together to reduce risks*, KRESGE FOUNDATION (Feb. 1, 2015), <http://kresge.org/news/faced-threats-climate-change-four-florida-counties-work-together-reduce-risks>.
- ¹⁷ See *Regional Climate Action Plan* (document at 18).
- ¹⁸ See *Regional Climate Action Plan* (document at 1).
- ¹⁹ Interview with Steve Adams and Nancy Schneider, ISC (Feb. 24, 2015).
- ²⁰ See *Regional Climate Action Plan* (document at 1).
- ²¹ See *A Unified Sea Level Rise Projection for Southeast Florida* (document at iii).
- ²² See *Regional Climate Action Plan* (document at 1).
- ²³ The Compact also works on mitigation strategies, but this case study discusses its adaptation efforts. See *Regional Climate Action Plan* (document at 1).
- ²⁴ See, e.g., West's F.S.A. Const. Art. 8 § 1(g); West's F.S.A. Const. Art. 8 § 2(b); West's F.S.A. § 125.01; West's F.S.A. § 166.021(4).
- ²⁵ A fiscal agent is an organization that receives grant money on behalf of another organization. See *About Fiscal Agents*, THE NEA FOUNDATION (Feb. 1, 2015), <http://www.neafoundation.org/pages/about-fiscal-agents>.
- ²⁶ See West's F.S.A. Const. Art. 8 § 1(g) (Counties); West's F.S.A. Const. Art. 8 § 2(b) (Municipalities).
- ²⁷ See West's F.S.A. Const. Art. 8 § 1.
- ²⁸ This list is not exhaustive. See West's F.S.A. § 125.01.
- ²⁹ “Municipal purpose” means any activity or power which may be exercised by the state or its political subdivisions. West's F.S.A. § 166.021(2).
- ³⁰ See West's F.S.A. § 166.021. The definition of General Law is, “1. Law that is neither local nor confined in application to particular persons. Even if there is only one person or entity to which a given law applies when enacted, it is general law if it purports to apply to all persons or places of a specified class throughout the jurisdiction. — Also termed *general statute*; *law of a general nature*. Cf. *special law*. 2. A statute that relates to a subject of a broad nature.” *Black's Law Dictionary* (10th ed. 2014).
- ³¹ See West's F.S.A. § 166.021(4).
- ³² Florida state law recognizes two types of counties: those organized under a county charter (charter counties) and those that are not (non-charter counties). Charter counties have broad powers of self-government and can take actions so long as they are not inconsistent with or preempted by state law. Charter counties can also provide in their charter which county ordinances will prevail over inconsistent municipal ordinances, for municipalities within the county borders. Counties have broad powers to adopt their own procedures, provide and maintain county buildings, provide services, prepare and enforce comprehensive plans, establishing zoning, adopt building codes, contract and enter into agreements, etc. 24 Fla. Prac., *Florida Municipal Law and Practice* § 2:3 (2014 ed.). Once municipalities incorporate within county boundaries, however, municipalities generally regulate the use and development of land. In the Compact, three out of the four counties – Broward, Miami-Dade, and Palm Beach – have a charter; Monroe does not.³²
- ³³ Incorporation occurs when the municipality drafts a charter in accordance with the Florida statute governing municipal incorporation. See 12A Fla. Jur 2d Counties, Etc. § 18.
- ³⁴ See e.g., BROWARD COUNTY, FLA., CHARTER § 8.10; West's F.S.A. § 163.3167(3) (stating that a county’s comprehensive plan is controlling until a municipality adopts one in accordance with proper procedure).
- ³⁵ Interview with Jennifer Jurado, Director, Natural Resources and Planning Division of Broward County (Mar. 2, 2015).
- ³⁶ Interview with Jennifer Jurado, Director, Natural Resources and Planning Division of Broward County (Mar. 2, 2015).
- ³⁷ Compact Structure Amendment, Steve Adams, Director of Strategic Initiatives, ISC (April 26, 2012).

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- ³⁸ See *Key Contacts*, THE SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT (Feb. 1, 2015), <http://www.southeastfloridaclimatecompact.org/who-we-are/>; Compact Structure Amendment, Steve Adams, Director of Strategic Initiatives, ISC (April 26, 2012).
- ³⁹ Id.
- ⁴⁰ See *Regional Climate Action Plan* (document at iv). Interview with Jim Murley, Director, South Florida Regional Planning Council (Mar. 16, 2015) (stating the SFRPC has a seat on the Steering Committee).
- ⁴¹ The local government representatives on the Steering Committee report back to their city and county administration and elected officials on the Compact's work and meeting agenda items. For a full list of the representatives on the Steering Committee: see *Key Contacts*, THE SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT, *supra* note 39.
- ⁴² Compact Structure Amendment, Steve Adams, Director of Strategic Initiatives, ISC (April 26, 2012).
- ⁴³ Interview with Steve Adams and Nancy Schneider, ISC (Feb. 24, 2015).
- ⁴⁴ Interview with Nichole Hefty, Chief, Office of Sustainability of Miami-Dade County (Feb. 9, 2015). Each of these products is submitted to the Steering Committee for vetting and consideration. A Quick Response Team of one individual per county, within the Policy Committee, addresses issues requiring immediate attention, like policy issues that arise in state or federal legislation or amendments. Compact Structure Amendment, Steve Adams, Director of Strategic Initiatives, ISC (April 26, 2012).
- ⁴⁵ Interview with Steve Adams and Nancy Schneider, ISC (Feb. 24, 2015). This Team also helps develop deliverables for the summits with the Policy Team, reviews summit participants' surveys, selects speakers, and recommends sponsors for the summit. Interview with Nichole Hefty, Chief, Office of Sustainability of Miami-Dade County (Feb. 9, 2015).
- ⁴⁶ Compact Structure Amendment, Steve Adams, Director of Strategic Initiatives, ISC (April 26, 2012). This team was disbanded after the RCAP was completed in 2012 but the Compact plans to reconstitute the team as it starts to develop the second iteration of the RCAP in 2016.
- ⁴⁷ The Nature Conservancy organized the Shoreline Group with assistance from the Compact counties, Youth Environmental Alliance, Florida Fish and Wildlife Conservation Commission, FAU, ISC, SFRPC, and some Compact municipalities. See *About: Nature-Based Coastal Defenses in Southeast Florida*, THE NATURE CONSERVANCY (Feb. 1, 2015), <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/florida/se-fl-case-studies-11-about.pdf>
- ⁴⁸ See *About: Nature-Based Coastal Defenses in Southeast Florida*, THE NATURE CONSERVANCY (Feb. 1, 2015), <http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/florida/explore/nature-based-coastal-defenses-in-southeast-florida.xml>.
- ⁴⁹ The Technical Ad Hoc Working Group is comprised of local scientists and the developers of former sea-level rise projections.
- ⁵⁰ See Technical Ad hoc Work Group (Southeast Florida Regional Climate Change Compact), *A Unified Sea Level Rise Projection for Southeast Florida* (document at iii), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/sea-level-rise.pdf>.
- ⁵¹ Interview with Nichole Hefty, Chief, Office of Sustainability of Miami-Dade County (Feb. 9, 2015).
- ⁵² Southeast Florida Climate Change Regional Compact, Sea Level Rise Work Group, *Unified Sea Level Rise Projection for Southeast Florida* (Oct. 2015), available at: <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2015/10/2015-Compact-Unified-Sea-Level-Rise-Projection.pdf> [hereinafter *2015 SLR Projection for Southeast Florida*].
- ⁵³ The group is comprised Geographic Information System practitioners, county representatives, South Florida Water Management District, federal agencies, and local universities.
- ⁵⁴ See *Analysis of the Vulnerability of Southeast Florida to Sea Level Rise* at B-3; See *Regional Climate Action Plan* at 10.
- ⁵⁵ In August 2012, this working group released the *Analysis of the Vulnerability of Southeast Florida to Sea Level Rise (Vulnerability Assessment)*, which used the sea-level rise projections developed by the Technical Work Group to develop

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- a bathtub inundation and digital elevation model to assess which portions of the Southeast Florida coast would be inundated under different sea-level rise scenarios. *See Analysis of the Vulnerability of Southeast Florida to Sea Level Rise.*
- ⁵⁶ To develop the indicators, the Compact partners with local academic institutions (through the Florida Climate Institute, described below) and the South Florida Water Management District.
- ⁵⁷ *Southeast Florida Climate Indicators*, available at: <http://www.southeastfloridaclimatecompact.org/indicators/>.
- ⁵⁸ Regional Compact GHG Inventory Work Group, *Southeast Florida Regional Climate Compact, Regional Greenhouse Gas Emissions Inventory Baseline Period: 2005-2009* (Nov. 2011), available at: <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/ghg-inventory.pdf>.
- ⁵⁹ *See Developing Consistent Methods for Mapping Sea Level Rise in Southeast Florida*, DIGICOAST (NOAA) (Feb. 1, 2015), <http://coast.noaa.gov/digitalcoast/stories/slr-seflorida>. Interview with Nichole Hefty, Chief, Office of Sustainability of Miami-Dade County (Feb. 9, 2015).
- ⁶⁰ ISC is a nonprofit organization focused on helping communities around the world become more sustainable. *See* ISC, *Our Impact*, <http://www.iscvt.org/impact/> (last visited May 7, 2015).
- ⁶¹ Other roles ISC plays are: providing strategic planning on future directions for the Compact, organizing a semi-annual Steering Committee retreat, facilitating communication between the Compact counties and locally to external audiences, leading Work Groups, developing and delivering Implementation Workshops and annual Resilient Redesign workshops, providing support for the Compact’s annual summit, and monitoring implementation of the *RCAP*. Interview with Steve Adams and Nancy Schneider, ISC (Feb. 24, 2015).
- ⁶² *See Regional Climate Action Plan* at 7.
- ⁶³ *See Regional Climate Action Plan* at 1.
- ⁶⁴ *See Regional Climate Action Plan* at 11.
- ⁶⁵ *See* Jenny Staletovich, *South Florida at forefront of climate planning, top U.S. scientist says*, MIAMI HERALD (October, 1, 2014), <http://www.miamiherald.com/news/local/environment/article2437135.html#storylink=cpy>.
- ⁶⁶ *See 2014 Sixth Annual Summit*, THE SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT (Feb. 1, 2015), <http://www.southeastfloridaclimatecompact.org/the-summit/2014-6th-annual-summit/>.
- ⁶⁷ Interview with Nichole Hefty, Chief, Office of Sustainability of Miami-Dade County (Feb. 9, 2015).
- ⁶⁸ *See Southeast Florida Regional Climate Change Compact*, THE SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT at Sections 1-4 (Feb. 1, 2015), <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/compact.pdf>.
- ⁶⁹ 2015 Legislative Program (State and Federal), Steve Adams, Director of Strategic Initiatives, ISC (December 12, 2014).
- ⁷⁰ 2015 Legislative Program (State and Federal), Steve Adams, Director of Strategic Initiatives, ISC (December 12, 2014).
- ⁷¹ 2015 Legislative Program (State and Federal), Steve Adams, Director of Strategic Initiatives, ISC (December 12, 2014).
- ⁷² *See Regional Climate Action Plan* at 4.
- ⁷³ Interview with Nichole Hefty, Chief, Office of Sustainability of Miami-Dade County (Feb. 9, 2015).
- ⁷⁴ “‘Adaptation Action Area’ or ‘adaptation area’ means a designation in the coastal management element of a local government’s comprehensive plan which identifies one or more areas that experience coastal flooding due to extreme high tides and storm surge, and that are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning.” F.S.A. § 163.3164(1). “At the option of the local government, develop an adaptation action area designation for those low-lying coastal zones that are experiencing coastal flooding due to extreme high tides and storm surge and are vulnerable to the impacts of rising sea level. Local governments that adopt an adaptation action area may consider policies within the coastal management element to improve resilience to coastal flooding resulting from high-tide events, storm surge, flash floods, stormwater runoff, and related impacts of sea-level rise. Criteria for the adaptation action area may include, but need not be limited to, areas for which the land elevations are

below, at, or near mean higher high water, which have a hydrologic connection to coastal waters, or which are designated as evacuation zones for storm surge.” F.S.A. § 163.3177(6)(g)(10).

⁷⁵ See Florida House of Representatives, *HB 7207*, 2011 LEGISLATURE (Feb. 1, 2015), http://www.myfloridahouse.gov/Sections/Documents/loadoc.aspx?FileName=_h7207er.docx&DocumentType=Bill&BillNumber=7207&Session=2011.

⁷⁶ See *Congressional Delegation*, FLORIDA HOUSE ON CAPITOL HILL (Feb. 1, 2015), <http://floridaembassy.com/index.php/sample-sites/congressional-delegation>.

⁷⁷ Fla. S.B. 1094 (2015); Senate Bill 1094 amended Section 163.3178(2)(f) of the Florida Statutes, which specifies mandatory components of the coastal management elements of local comprehensive plans, to require that redevelopment components consider flood risks from sea-level rise and encourage use of best practices to remove coastal property from FEMA-designated flood zones or to reduce flood losses as follows:

(2) Each coastal management element ... shall contain: (f) a redevelopment component that outlines the principles that must be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise. The component must:

1. Include development and redevelopment principles, strategies, and engineering solutions that reduce the flood risk in coastal areas which results from high-tide events, storm surge, flash floods, stormwater runoff, and the related impacts of sea-level rise.
2. Encourage the use of best practices development and redevelopment principles, strategies, and engineering solutions that will result in the removal of coastal real property from flood zone designations established by the Federal Emergency Management Agency.
3. Identify site development techniques and best practices that may reduce losses due to flooding and claims made under flood insurance policies issued in this state.
4. Be consistent with, or more stringent than, the flood-resistant construction requirements in the Florida Building Code and applicable flood plain management regulations set forth in 44 C.F.R. part 60.
5. Require that any construction activities seaward of the coastal construction control lines established pursuant to [s. 161.053](#) be consistent with chapter 161.
6. Encourage local governments to participate in the National Flood Insurance Program Community Rating System administered by the Federal Emergency Management Agency to achieve flood insurance premium discounts for their residents.

⁷⁸ A full list of sources used to develop the projections are included in Appendix A and B to the *2015 Unified SLR Projection*.

⁷⁹ See *2011 Unified Sea Level Rise Projection for Southeast Florida* at 9-10.

⁸⁰ *2015 Unified SLR Project for Southeast Florida* at 1.

⁸¹ *Id.*

⁸² *2015 Unified SLR Projection* at 11 – 13.

⁸³ *2015 Unified Sea Level Rise Projection for Southeast Florida* at 9-10

⁸⁴ See *Analysis of the Vulnerability of Southeast Florida to Sea Level Rise* at B-22 – B-24.

⁸⁵ The work group first developed a digital elevation model using LiDAR data and input water surface elevations (based upon the mean higher high water line (MHHW, SLR +0) to establish the baseline. Next, they used a “modified bathtub approach” to compare water level data to land elevation data to determine what would be inundated under different sea-level rise scenarios: 1-, 2-, and 3- foot scenarios. The study characterizes lands as “possibly” (25-75%) inundated or “likely” (75% or greater) inundated to account for uncertainty in the sea-level rise and digital elevation data. NOAA provided significant expertise with the technical aspects of the analysis. See *Analysis of the Vulnerability of Southeast Florida to Sea Level Rise* at B-3 – B-21.

⁸⁶ See *Regional Climate Action Plan* at 9-10.

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- ⁸⁷ In Section 6 of the Compact Agreement each county agreed to “work with other counties party to this compact in developing a Southeast Florida Regional Climate Change Action Plan, understanding that no county will work at cross-purposes with the other counties.”
- ⁸⁸ See *Regional Climate Action Plan* at 1. See *Southeast Florida Regional Climate Change Compact* at 2.
- ⁸⁹ See *Regional Climate Action Plan* at B-1 – B-16.
- ⁹⁰ See *Regional Climate Action Plan* at 15.
- ⁹¹ See, e.g., BROWARD COUNTY, FLA., CHARTER § 8.
- ⁹² See Florida Public Health Institute, *Health Impact Assessment* at 2 (March 2014), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/REVISED-HIA-Final-Report-101514-1.pdf>.
- ⁹³ See Broward County Environmental Protection & Growth Management Department, *Integrating Climate Change & Water Supply Planning in Southeast Florida* at 2 (September 9, 2014), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/rcap-igd-water-supply-final-9-9.pdf>.
- ⁹⁴ See Southeast Florida Regional Climate Change Compact, *Regional Climate Action Framework: Implementation Guide*, available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/implementation-guide.pdf>.
- ⁹⁵ See *Integrating Climate Change & Water Supply Planning in Southeast Florida* at 3.
- ⁹⁶ See *Integrating Climate Change & Water Supply Planning in Southeast Florida* at 3.
- ⁹⁷ See *Integrating Climate Change & Water Supply Planning in Southeast Florida* at 14.
- ⁹⁸ See *Integrating Climate Change & Water Supply Planning in Southeast Florida* at 22-24.
- ⁹⁹ Southeast Florida Regional Climate Change Compact, RCAP Implementation Guidance Series, *Regional Impacts of Climate Change and Issues for Stormwater Management* (2015), available at: <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2015/11/Stormwater-Guide.pdf>.
- ¹⁰⁰ Interview with Jennifer Jurado, Director, Natural Resources and Planning Division of Broward County (Mar. 2, 2015).
- ¹⁰¹ See The Southeast Florida Regional Climate Change Compact, *Mayors Climate Action Pledge* (2013), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/mayors-climate-action-pledge.pdf>.
- ¹⁰² Signing municipalities include: City of Fort Lauderdale, City of Key West, City of Boynton Beach, Town of Hillsboro Beach, Village of Pinecrest, City of Dania Beach, City of Hollywood, City of Lauderhill, Town of Davie, City of Hallandale Beach, City of Miami Beach, City of Pompano Beach, City of Oakland Park, Town of Lauderdale-By-The-Sea, City of Coconut Creek, City of North Lauderdale, City of Wilton Manors, City of Deerfield Beach, City of Margate, City of Sunrise, Town of Surfside, City of South Miami, Town of Bay Harbor Islands, City of Delray Beach. See Southeast Florida Regional Climate Change Compact, *Who We Are – Compact Pledge Communities*, <http://www.southeastfloridaclimatecompact.org/who-we-are/> (last visited May 7, 2015). See also *Main Compact Documents*, THE SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT (Feb. 1, 2015), <http://www.southeastfloridaclimatecompact.org/compact-documents/>.
- ¹⁰³ See Southeast Florida Regional Climate Change Compact, RCAP Implementation Workshop: AAA Legislation and Application, <http://www.southeastfloridaclimatecompact.org/events/event/rcap-implementation-workshop-aaa-legislation-and-application-2/> (last visited May 7, 2015). The workshops are well attended with around seventy attendees per workshop, Interview with Steve Adams and Nancy Schneider, ISC (Feb. 24, 2015).
- ¹⁰⁴ South Florida Regional Planning Council. *Adaptation Action Areas: Policy Options for Adaptive Planning for Rising Sea Levels* (Nov. 2013), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/final-report-aaa.pdf>.
- ¹⁰⁵ See Institute for Sustainable Communities, *2014 Municipal Implementation Survey Report* (February 2015), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2015/02/RCAP-IGD-2014-Survey-Report-2-26-15-FINAL.pdf>.
- ¹⁰⁶ See *2014 Municipal Implementation Survey Report* at 6.

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- ¹⁰⁷ See *2014 Municipal Implementation Survey Report* at 8.
- ¹⁰⁸ Id. at 13.
- ¹⁰⁹ Id. at 14.
- ¹¹⁰ See *2014 Municipal Implementation Survey Report* at 16.
- ¹¹¹ Interview with Steve Adams and Nancy Schneider, ISC (Feb. 24, 2015).
- ¹¹² *RCAP Database*, <http://rcap.southeastfloridaclimatecompact.org/>.
- ¹¹³ Section 5: “Each County shall commit appropriate staff resources and expertise within budget constraints” to the Regional Climate Team for the development of the RCAP. See *Southeast Florida Regional Climate Change Compact* (document at Section 5).
- ¹¹⁴ See *Faced with threats from climate change, four Florida counties work together to reduce risks*, KRESGE FOUNDATION (Feb. 1, 2015), <http://kresge.org/news/faced-threats-climate-change-four-florida-counties-work-together-reduce-risks>.
- ¹¹⁵ Interview with Steve Adams and Nancy Schneider, ISC (Feb. 24, 2015).
- ¹¹⁶ *100 Resilient Cities and The Rockefeller Foundation Welcome Great Miami and the Beaches into the Global Resilience-Building Network* (May 25, 2016), available at: <http://www.miamibeachfl.gov/WorkArea/DownloadAsset.aspx?id=87794>
- ¹¹⁷ See *Health Impact Assessment* at ii.
- ¹¹⁸ Interview with Jim Murley, Director, South Florida Regional Planning Council (Mar. 16, 2015); see Florida Public Health Institute, *Health Impact Assessment*, available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/REVISED-HIA-Final-Report-101514-1.pdf>.
- ¹¹⁹ For more information on the South Florida Climate Resilience Pilot Program, see FHWA, FHWA Climate Resilience Pilot Program: South Florida (FHWA-HEP-16-048), http://www.fhwa.dot.gov/environment/climate_change/adaptation/resilience_pilots/2013-2015_pilots/south_florida/index.cfm.
- ¹²⁰ The four counties considered and approved the interlocal agreement during their County Commissions’ meetings in June and July 2016. The agreement provides that each of the four counties contribute \$100,000 over a two-year period for services related to the Compact provided by ISC and specifying that Broward County manage the contract with ISC on behalf of the four counties. See Broward County, Broward County Commission Regular Meeting (June 7, 2016), http://205.166.161.204/print_ag_memo.cfm?seq=22236&rev_num=0&mode=External&reloaded=true&id=; Miami-Dade County, Miami-Dade Legislative Item File Number 161212 (July 6, 2016), <http://www.miamidade.gov/govaction/matter.asp?matter=161212&file=true&yearFolder=Y2016>; Monroe County, Board of County Commissioners, Regular Meeting (June 15, 2016), Agenda Item P.5; Palm Beach County, Board of County Commissioners Meeting (June 21, 2016), Agenda Item 3A-1 Summary, www.pbcgov.com/pubInf/Agenda/20160621/3A1.pdf.
- ¹²¹ Interview with Nichole Hefty, Chief, Office of Sustainability of Miami-Dade County (Feb. 9, 2015).

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