



## SOUTHEAST & CARIBBEAN DISASTER RESILIENCE PARTNERSHIP

### Strategic Initiatives for Expanding the Partnership Reach, Impact, Membership & Sustainability January 2021- December 2023

#### Executive Summary:

The Southeast and Caribbean Disaster Resilience Partnership (SCDRP) is a growing network of individuals who came together under a grant that supported various projects conducted in the Southeast region that would begin work on gaps in disaster recovery planning and resilience-focused goals. Now, seeking to better formalize its organizational structure and clarify its mission and vision but remaining an affiliate program of the Southeast Coastal Ocean Observing Regional Association (SECOORA), the SCDRP is supported by bridge-funding from both its parent NGO and NOAA to develop a strategic plan for the partnership. Organizational features such as coordination, membership, communications, and leadership have been operating in a de facto capacity, and after four years, have gained enough momentum for the SCDRP to shape its long-term goals in this strategic plan.

Along with projects completed over the last five years, our stability and long-term existence as a resilience-focused organization will serve as a direct asset to the growing needs of sharing best practices and opportunities in climate adaptation and recovery planning efforts in the Southeast and U.S. Caribbean region.

Our current members range from those who focus on response and recovery planning to those who are interested in long-term climate adaptation. By convening an extensive and growing network of professionals from the public and private sectors who focus on building resilience in the Southeast and Caribbean region, the SCDRP has the potential to serve as the primary resource for knowledge, information, and best practices in resilience and climate adaptation. We plan to use this strategic plan to guide our growth in the coming years, and use the momentum of increasing member-support to gain new partners and benefactors who will help the SCDRP further its goals.

Signed by  
*SCDRP Advisory Board, 2020*

#### Our Vision

Communities in the US Southeast and Caribbean will be more resilient to climate change, natural hazards and disasters, lessening the intensity and duration of the disruption to society.

#### Our Mission

The SCDRP seeks to strengthen community resilience and support rapid disaster recovery from storms and disasters by serving as the primary network for professionals in emergency management, climate adaptation, and disaster recovery in the US Southeast and Caribbean territories.

#### The SCDRP Region

The "official" SCDRP region includes the states of North Carolina (NC), South Carolina (SC), Georgia (GA), and Florida (FL) on the U.S. mainland, and the US Caribbean territories of the Virgin Islands (USVI) and Puerto Rico (PR). This region serves as home to an ever-growing and diversifying population that are both sparsely scattered in rural towns and farm-country, and also concentrated in densely-populated urban cosmopolitan centers throughout the region. Despite being one of the most socially and economically diverse regions in the US, resilience and climate adaptation efforts are becoming an effort of mutual interest and effort.

Busy ports, high-rise hotels, exclusive seaside suburbs, and tourist-hubs line much of the coast, which are punctuated by stretches of capes, estuaries, marshlands, temperate maritime forests, beaches, tidal flats, and mangroves. The rich, fertile soils of the Appalachian piedmont give rise to an important agricultural industry in the

region, while open spaces along growing mid-sized towns have attracted large manufacturing firms and multi-national corporations, spurring upward trends in job growth and development. Both commercial and residential construction projects are a constant activity in an effort to keep up with an increasing migration of the Baby Boomer generation taking shelter from more northern climates, along with housing development needed to keep pace with the burgeoning job opportunities brought about by this region's growing economies. In general, this region is vulnerable to several kinds of natural hazards because of its location, putting it on the receiving end of most Atlantic basin hurricanes. While the U.S. Caribbean territories sit along a plate boundary, resulting in earthquakes and tsunamis as additional threats.

## Regional Physical Geography and Natural Hazards

The sandy barrier islands of North Carolina's Outer Banks, which along with expanses of maritime forests and saltmarsh, mark the northern-most reaches of the SCDRP region, while the limestone tracts of coral reef systems of Florida and the Caribbean mark the southern extent. This region is generally surrounded by the warm oceans of the Caribbean, Loop, and Gulf Stream currents that give rise to mostly mild, temperate, sub-tropical, and tropical climates. Summers are generally wet and humid, while winters are relatively dry, and typically mild. Although technically, the SCDRP area covers part of only two climate-regions in the Klöppen-Geiger classification, this region, in fact, is classified as being in three different climate zones in contexts of energy-use trends and related resource needs (IECC, 2012). Summer heatwaves are expected events, often bringing heat indices well into the 100s for days on end. During the winters, snow is a common component of the Appalachian chain, and in some years, the occasional frosts may reach down the spine of Florida.

### ***Regular Hazards & Catastrophic Events:***

For the Southeast region, forest fires and devastating inland flooding occur on occasion, and sometimes drought; but the most frequent and annual natural hazard shared by all communities in this region are tropical storms and hurricanes. Additional hazards that come with these include the inevitable potential for severe flooding, tornadoes, storm-surge inundation, and widespread coastal erosion. At least one hurricane makes landfall somewhere along the Southeast coast every year; however, because of the general increasing trend of warming oceans, that average has gone up in the past decade to nearly two guaranteed Category 1 (or greater) hurricanes making landfall somewhere along the Atlantic or Gulf coasts per season (NHC 2020).

Because of its location, the Caribbean experiences a much greater incidence of hurricane strikes than the Southeast, with 19 storms affecting these islands from between 2015 and 2018, most of them in the Greater Antilles, which includes the US Virgin Islands and Puerto Rico. According to NOAA, since 1851 when hurricane record-keeping officially began, the U.S. state record holder for hurricane landfalls is Florida with 117, which is just over twice as many as Texas as second, followed by Louisiana, North Carolina and South Carolina (NHC 2020). Compounding challenges caused by these extreme weather events that are more common in the Caribbean include freshwater availability, although coastal regions along the mainland are increasingly experiencing salt-water intrusion because of growing population densities and unsustainable extraction practices. The latter also leads to sink-hole collapse in karst regions and also affect coastal ecosystem integrity.

Since 1980—excluding the very active 2020 season—there have been 45 tropical cyclones that have struck the Southeast, U.S. Caribbean, and Gulf coast regions, resulting in a combined cost of over \$954 billion in damages, which averages to approximately \$21.2 billion in infrastructure damage and business losses per event. Although accounting for just under 20% of the total 265 disaster events in this period, the cost from destructive forces brought by hurricanes that strike the U.S. mainland and its Caribbean territories amounts to over 53% of the cost of all disaster-events throughout this 50-year period (NOAA/NCEI, 2020). These events usually cause wide-spread destruction of infrastructure, homes, businesses, and environment, and any number of secondary effects such as long-term housing shortages, breaches in food security, potable water scarcity, long-term transportation/mobility issues, and unemployment due to the destruction of brick-and-mortar businesses and loss of internet capabilities. Recovery from such events often takes several years, and is generally impossible without mutual aid agreements, government assistance, partnerships, and volunteer contributions, particularly in the Caribbean islands.

### **Long-Term Concerns:**

Hurricanes are expected annual events, often affecting communities for many years following direct strikes. However, longer-term resilience problems are quickly emerging as well. Rates of rise in sea-level that were predicted by climate-change experts decades ago are being increasingly outpaced by the actual rate of inundation experienced today (Oppenheimer et al 2019). This adds to the potential of future losses during hurricane events, given the coastal regions are densely populated low-lying marsh lands and migrating barrier islands. Subsidence, where land sinks because of various geological processes, is also a growing concern among the scientific communities that monitor encroaching seas. Low-lying marsh and mangrove systems are of particular concern, which make up most of the coastal fringe of NC, GA, SC, and northeast FL, while the FL Everglades system is already showing clear signs of massive ecosystem shifts caused by the combination of destruction from hurricanes and rising seas exacerbating environmental problems caused by early mismanagement of this system (Wanless et al. 1995).

Along with issues of marshland subsidence, freshwater scarcity is emerging as a growing long-term concern. On the US mainland, intensive coastal development such as multi-unit condominiums and golf courses have also resulted in over-extraction of coastal freshwater resources, causing salt-water intrusion in what were once freshwater wells. In the Caribbean, freshwater resources are among the top concerns in long-term climate adaptation.

With the rise in sea-level, coastal development has also become a high-risk venture. Increasing erosion of the coastal fringe and sandy barrier islands has resulted in exacerbating vulnerability to coastal development. In the Outer Banks of NC, even common nor'easters can result in road closures because of excessive tidal inundation causing overwash and breaches in what were once protective dune systems. Many residential structures, particularly around the towns of Rodanthe and Avon, stand in the water even during low-tide. In undeveloped areas around the rest of the southeast and Gulf coasts, maritime forests are succumbing to encroaching sea-level, evidenced by graveyards of dead trees lining the beaches as primary dune ridges are continually being swept away as mean high tides reach further onto land.

## **Unique Communities—Common Challenges The Need for a Regional Resilience Partnership**

The Southeastern U.S. has grown tremendously over the past several decades. The region's history of rural and farm communities still resonates in less populous areas, however this region is the fastest growing area in the U.S. in terms of job growth and housing development.

Population estimates for the US Southeast and Caribbean territories are approximately 102.5 million (US Census 2010). Population densities vary broadly across the SCDRP region, ranging from Florida estimated at an approximate 391 people/mile<sup>2</sup> and SC with about 187 people/mile<sup>2</sup>. Coastal zones have the highest population densities in this region, regardless of state, with 78.3 people/mile<sup>2</sup> occupying the region's coastal counties, compared to the 35.6 people/mile<sup>2</sup> who occupy non-coastal counties (Wilson and Fischetti, 2020).

Although many inland and upland areas are mostly rural, or small towns nestled between farmlands and forests, this region also plays host to some of the most densely-populated metropolitan centers. The Greater Miami Area has a population of about 12 million, from the Keys & Miami to West Palm Beach. Other population hotspots in the southeast include the Greater Atlanta area, Charleston/North Charleston, SC, the Jacksonville-St. Augustine area, Tampa on the Gulf coast of FL, and Charlotte, NC, which along with Jacksonville and Charleston are among the fastest-growing mid-sized cities in this region, according to the U.S. Census Bureau. Over half of all coastal counties from NC to FL are experiencing between 5-8% increases in housing construction over the past decade, compared to a rate of between 2-5% for all remaining inland counties in this region (Census.gov; data: housing unit percent change by county 2010-2018).

Because the greatest population densities are along the coast, and the common destructive weather events that regularly visit this region and which are compounded by the effects of sea-level encroachment, the coastal fringe in this region is arguably the most vulnerable to the periodic threats of hurricanes and the continuing sea level

rise. But despite the common climate-related risks communities share, the region's variation in physical geographies, distribution of populations, and significant differences in state policies related to hazards resilience, ultimately results in very different and highly unique needs and priorities in the region's communities. While some communities have made great strides in advancing resilience efforts that work towards rapid recovery and hazard mitigation innovations, other communities still lack plans or guidance on developing community resilience. The variation in needs and priorities presents an opportunity to come together and find ways to leverage resources to build regional capacity. The inconsistency in plans and policies across the region and the unique geographies across the region, has served as the basis for taking action and develop a member-driven partnership that can provide a network to share best practices and provide insight into how to access resources that build capacity and further resilience and climate adaptation efforts.

Now, with new challenges presented by the COVID-19 pandemic, complicating the way we must approach resiliency and adapt to new ways to act on threats from natural hazards, the mission of the SCDRP becomes increasingly urgent and escalates the importance of peer exchange and leveraging resources to ensure resiliency and recovery success in our communities. Building a strong network of professionals that represent over 70 different institutions and businesses that focus on a wide range of issues, from housing and infrastructure to economic recovery and resilience, the SCDRP provides access to a unique and diverse community of recovery, resiliency and climate adaptation professionals. Our intention is to continue supporting resilience efforts and grow our network of professionals across any sector and industry that focuses on climate adaptation, natural hazard mitigation and resiliency, and recovery planning and policy efforts.

## How We Get There: SCDRP Strategic Vision

### Our Vision

Communities in the US Southeast and Caribbean will be more resilient to climate change, natural hazards and disasters, lessening the intensity and duration of the disruption to society.

### Our Mission

The SCDRP seeks to strengthen community resilience and support rapid disaster recovery from storms and disasters by serving as the primary network for professionals in emergency management, climate adaptation, and disaster recovery in the US Southeast and Caribbean territories.

### Objective 1

- Serve as the primary regional forum for dialogue, networking, and coordination in disaster resilience and recovery among federal, state, municipal, NGO and private industry sectors operating in the Southeast and Caribbean.

#### Key Strategies

- Broaden membership by establishing formal relationships with universities, research consortiums, professional associations, environmental programs, and private sector organizations.
- Enhance collaboration through partnering, merging, or working with related regional organizations and groups.
- Continue sponsoring annual meetings.
- Provide and share resources to better connect and inform members in the network.
- Connect members with applicable programs that enhance resilience.

### Objective 2

- Build capacity through increasing the development, sharing and use of best practices to enhance community resilience.

#### Key Strategies:

- Serve as a clearinghouse for resilience guidance and information.
- Facilitate sharing lessons learned for communities with similar challenges.
- Seek educational opportunities that advance policies and programs designed to increase resilience.

- Coordinate collaborative resilience projects, research efforts and activities that bridge knowledge-gaps identified by SCDRP members.
- Develop and maintain repository of best practices, data, reports, policies, plans and other documents that can be queried by members and others interested in disaster resilience.

### Objective 3

- Cultivate the resources and build the operational capacity to implement our mission and ensure our vision is achieved and sustained.

#### Key Strategies

- Develop and maintain a membership and organizational structure that allows the SCDRP to achieve its mission.
- Continue to recruit and cultivate public- and private-sector members to achieve our vision for community-engagement in disaster resilience and recovery planning across our region.
- Identify and compete for resources to maintain the operational capacity and programmatic elements of the partnership.

## The SCDRP Organization

The SCDRP is a sub-program of the Southeast Coastal Ocean Observing Regional Association (SECOORA), which formed the partnership through supporting recovery planning needs for the region, following the destructive impacts from the 2016 hurricane season. Through this multi-state, cross-organizational collaborative effort, the partnership grew into a multi-sector network of resilience and climate adaptation professionals.

#### Governance & Committees

The SCDRP is governed by an Advisory Board that provides guidance on the direction and operations of the partnership. This group of 13 is comprised of representatives from Federal, state and local agencies, non-profit organizations, academia and the private sector, who meet on a monthly basis to chart pathways towards achieving the missions and goals of the partnership. A program coordinator/director leads day-to-day activities, program development, scheduling and tracking, and other coordination-related tasks.

The Advisory Board also formed a Development Committee that is charged with further developing the program assets and organizational support.

#### Membership

The SCDRP welcomes anyone with shared interests into the group as it seeks to expand its network and continues to develop into one of the most diverse resilience networks active in the Southeast and Caribbean regions.

Membership calls are held on a regular basis, and those who choose to sign up on our member's only list-serve can connect with each other and share information on activities and events related to current issues and opportunities in resilience-related efforts. Prospective members can choose to join the list-serve at no charge and receive newsletters and information about webinars, events, funding opportunities, relevant job postings, and other issues of interest. (See Membership Annex for details on membership structure.)

## References Cited:

Census.gov; data: housing unit percent change by county 2010-2018).

Finkl, Charles W. (2014) *Beach of the Month: East Florida's Barrier Islands: Natural vs. Man-Made, Coastal Care*. [URL: <https://coastalcare.org/2014/02/east-floridas-barrier-islands-natural-vs-man-made/> Accessed 06/17/2020]

International Code Council, 2012, International Energy Conservation Code Map, U.S. Dept. of Energy, Energy Efficiency & Renewable Energy. [URL: <https://basc.pnnl.gov/images/iecc-climate-zone-map>. Accessed: 08/24/2020].

NOAA/National Hurricane Center (NOAA/NHC), 2020. *Tropical Cyclone Climatology* (<https://www.nhc.noaa.gov/climo>)

NOAA/National Centers for Environmental Information (NOAA/NCEI), 2020 "Calculating the Coast of Weather and Climate Disasters"  
Updated April 8, 2020. URL: <https://www.ncei.noaa.gov/news/calculating-cost-weather-and-climate-disasters>.

Oppenheimer, M., B.C. Glavovic, J. Hinkel, R. van de Wal, A.K. Magnan, A. Abd-Elgawad, R. Cai, M. Cifuentes-Jara, R.M. DeConto, T. Ghosh, J. Hay, F. Isla, B. Marzeion, B. Meyssignac, and Z. Sebesvari, 2019: Sea Level Rise and Implications for Low-Lying Islands, Coasts and Communities. In: *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. In press.

Wanless, H.R., Tedesco, L.P., Risi, J.A., Bischof, B.G., and Gelsanliter, S., 1995. *The Role of Storm Processes on the Growth and Evolution of Coastal and Shallow Marine Sedimentary Environments in South Florida, Field Trip Guide*, The 1st SEPM Congress on Sedimentary Geology, St. Petersburg, FL, 179p.

Wilson, Steven G. & Fischetti, Thomsas R. (2020) "Coastline Population Trends in the United States: 1960-2008: Population Estimates and Projections", *Current Population Reports, U.S. Dept. of Commerce, Economics and Statistics Administration*, U.S. Census Bureau. Issued May 2020, publication # P25-1139

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