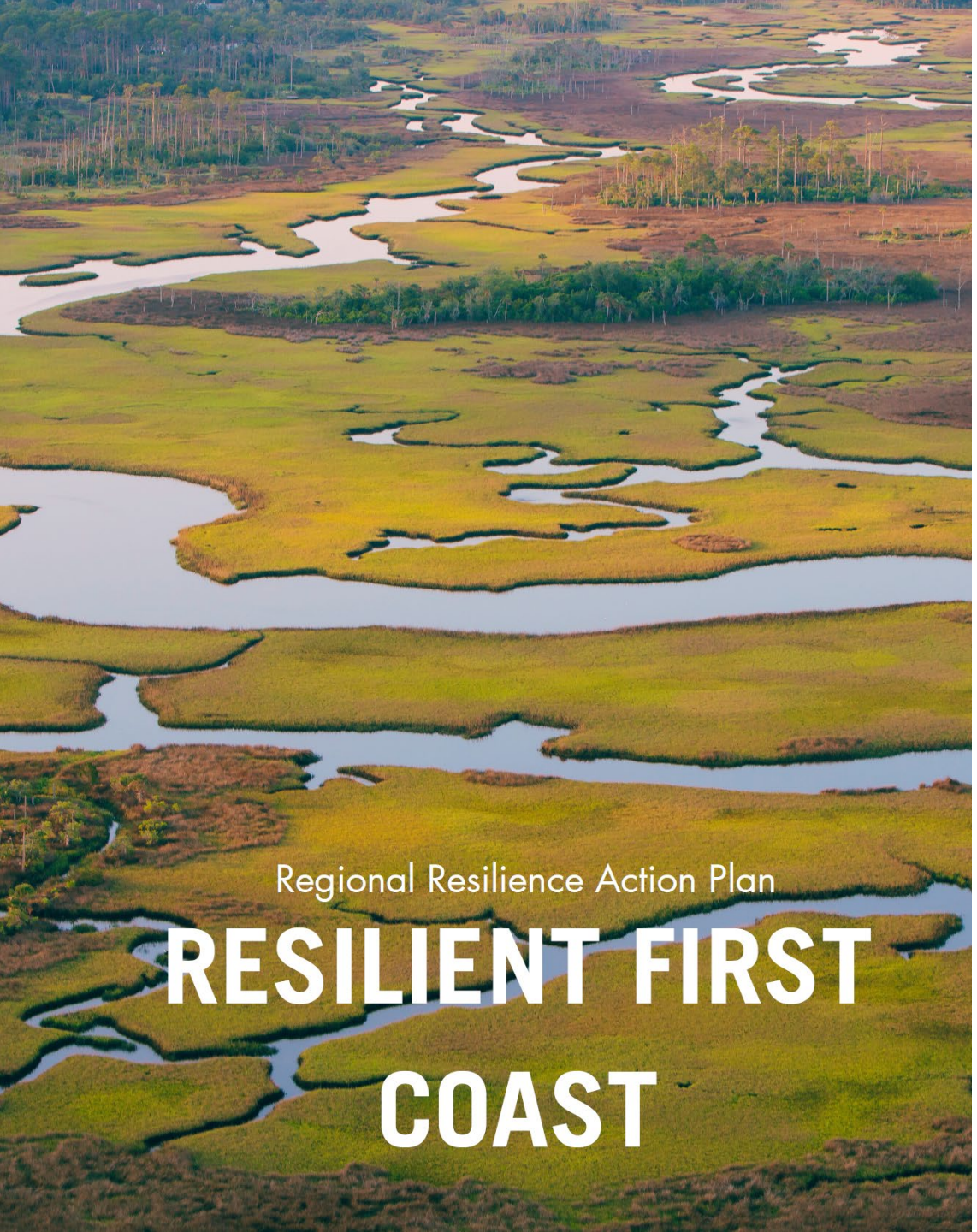


Redefining Regional Resilience

NORTHEAST FLORIDA REGIONAL COUNCIL

RESILIENT First Coast

A Program of the Northeast Florida Regional Council

Fara Ilami, Regional Resiliency Manager

Northeast Florida Regional Council

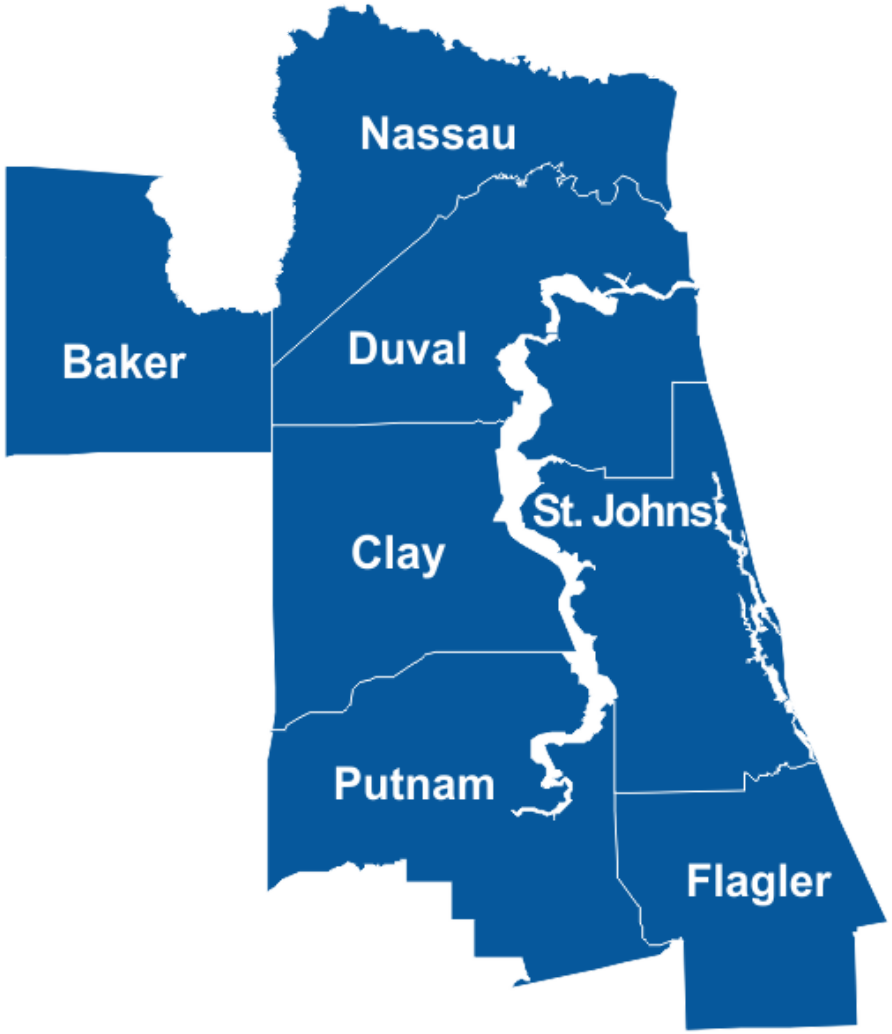
Presented to City of Jacksonville Waterways Commission

December 10, 2025

Northeast Florida Regional Council

serving

Baker, Clay, Duval, Flagler, Nassau, Putnam and St. Johns counties



- Regional Councils were formed under Florida Statute, Chapter 163, to:

"…establish an organization that will promote area-wide coordination and related cooperative activities of federal, state, and local governments ensuring a broad-based regional organization that can provide a truly regional perspective and enhance the ability and opportunity of local governments to resolve issues and problems transcending their individual boundaries."

- NEFRC was established in 1977 by an interlocal agreement among all seven counties.

- There are ten Regional Planning Councils in the State, covering all 67 counties.

Our Mission

The mission of the NEFRC is to celebrate the unique assets of Northeast Florida and to engage its people, businesses, governments and organizations.

In doing so we:

- Communicate Issues
- Convene Stakeholders
- Collaborate with Others
- Calculate and Analyze
- Construct Solutions

The People of NEFRC

Board of Directors

- 35 total Board members
- 2/3 are local elected officials & 1/3 are gubernatorial appointees
- Each county has four members
- Ex-officio non-voting members include:
  - Department of Transportation
  - Department of Environmental Protection
  - FloridaCommerce
  - St. Johns River Water Management District

Leadership*

President
- Hon. James Bennett
  Baker County

1st Vice President
- Hon. Andy Dance
  Flagler County

2nd Vice President
- Hon. Ken Amaro
  City of Jacksonville

Secretary/Treasurer
- Mr. Darryl Register
  Baker County

Duval County Board Members

- Honorable Ken Amaro
- Honorable Mike Gay
- Mayor Lynch, Town of Baldwin
- Ms. Elaine Brown,
  Gubernatorial Appointment

*Officers change each October at the start of the new fiscal year and rotate among the seven counties.

NEFRC Staff

Elizabeth Payne
Chief Executive Officer

Eric Anderson
Deputy CEO

Donna Starling
Chief Finance Officer

Sheron Forde
HR & Exec. Assistant

Apurva Jamb
Sr Regional Planner

Robert Jordan
Sr. Regional Planner

Monica Dominguez
Economic Development Program Manager

Fara Ilami
Regional Resiliency Manager

Jack Shad
Economic Development Project Manager

Annie Sieger
Sr. Regional Planner

Carol Main
Accounting & Admin. Assistant

Our team has spent decades building a vast network of federal, state, local and community partnerships that make regional planning more effective and comprehensive.

Kenajawa Woody
Communications Coordinator

Leigh Wilsey
Healthcare Coalition Program Manager

Tyler Nolen
Special Projects Coordinator

Cassidy Taylor
Economic Recovery Coordinator

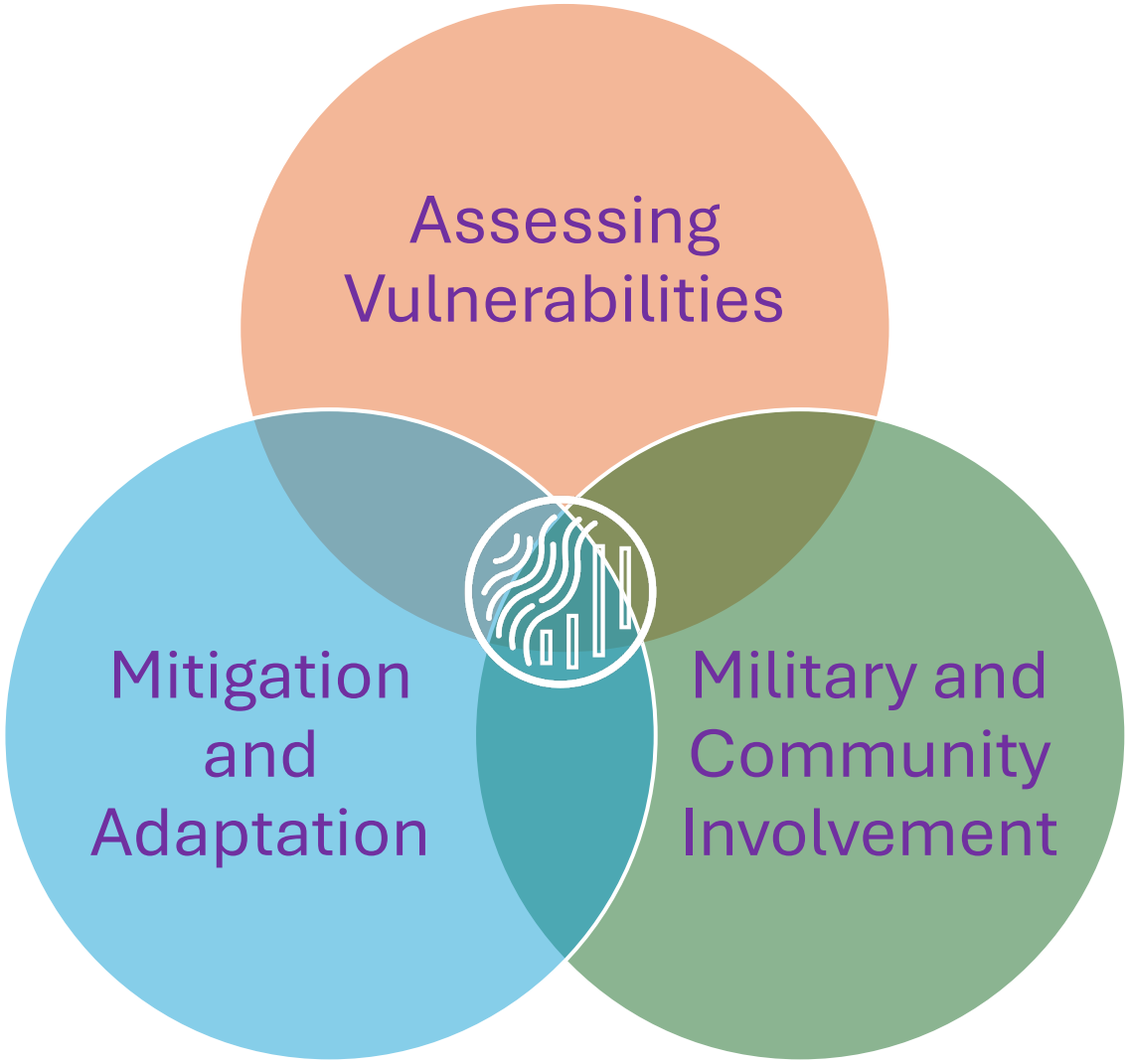
Summer Jones
Transportation Disadvantaged Coordinator

Andrew Prokopiak
Sr. Regional Planner

NEFRC Programs

- Emergency Preparedness
- Economic Development
- Resiliency
- Community Development

NEFRC Resiliency Program: Spheres of Action



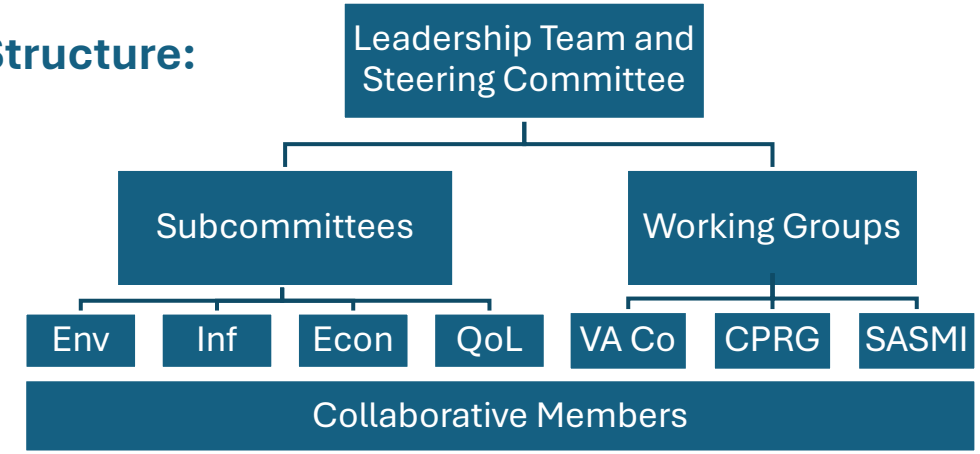
RESILIENT First Coast

A Program of the Northeast Florida Regional Council

https://www.resilientfirstcoast.com/

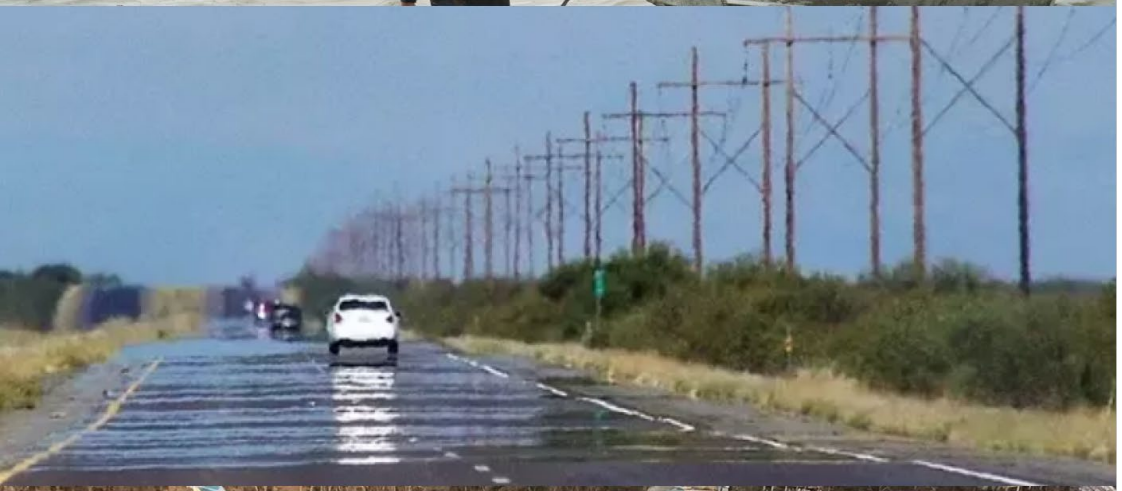
Examples of Integrative Work: Regional Resilience Action Plan; Regional vulnerability assessment coordination, analysis, and manual; addressing aquatic connectivity in resilience context

- **Entity Type:** Regional Resiliency Collaborative for Northeast Florida; a program of NEFRC
- **Vision:** Resilient First Coast will actively promote regional cooperation on initiatives that improve the environment, quality of life, infrastructure, and economic resilience of Northeast Florida to adapt and thrive in the face of acute shocks and chronic stresses related to climate change.
- **Membership:** local governments, businesses, non-profit organizations, academia, and federal/ state agencies.
- **Structure:**



What is Regional Resilience?

Regional resilience is the ability of systems to adapt and thrive in the face of acute shocks (sudden, extreme events that threaten a community) and stressors (long-term pressures that weaken the fabric of the community over time).



Significant Regional Hazards

Flooding

Flooding is a critical issue for Northeast Florida counties because of their proximity to the Atlantic Ocean and St. Johns River. Compound flooding occurs when two or more flood drivers (e.g., tidal surge and heavy rains) occur simultaneously, resulting in more severe and / or frequent flooding. Many areas in Northeast Florida are prone to compound flooding, which can damage assets and adversely impact quality of life for residents. Accordingly, many local governments within Northeast Florida have completed vulnerability assessments to identify areas and assets most at risk from flooding.

Heat

Northeastern Florida also faces challenges due to increasing temperatures. Heat index is one way to assess extreme heat events, and the number of days with a heat index above 90° F is expected to increase from less than 100 to nearly 140 by mid-century. Additionally, the number of days with a heat index above 100° F are projected to increase from less than 20 to more than 60 by mid-century (2). Nighttime temperatures are also increasing, which can exacerbate issues for people with existing conditions and compromise public health. Increased heat may also intensify storms and increase the frequency of severe storms.

Hurricanes

Hurricane tracks do not often travel directly over Northeast Florida. However, there are a few notable exceptions. In 1964, Hurricane Dora made landfall near St. Augustine with winds of 110 mph (175 km/h). The First Coast also experienced impacts from Hurricanes Irma and Matthew, which caused widespread flooding and power outages. However, flash flooding can occur outside of hurricane season, disrupting daily life for residents. Regional resilience will require plans and processes to proactively adapt to rainfall events throughout the year.

Drivers of Vulnerability

- Geographic proximity to water
- Anthropogenic pollution and runoff
- Soil saturation capacity
- Loss of wetlands
- Loss of biodiversity
- Changes in rainfall patterns
- Concentration of septic tanks
- Sensitivity of historical assets
- Power and communication networks
- Information communication practices
- Proliferation of impervious surfaces
- Population growth
- Aging population
- Transient populations
- Cost of flood insurance

WHAT IS A REGIONAL RESILIENCE ACTION PLAN?

A Regional Resilience Action Plan (RRAP) provides a number of goals, objectives, and actions to enable the region as a whole to mitigate and adapt to current and future challenges. The plan provides a framework for cohesive regional collaboration to drive resilience adaptation strategies at the local level, however, the plan does not prescribe a specific set of directives aimed at any one specific program or local government, since there is no one-size-fits-all strategy for achieving resilience. The plan is a voluntary tool that includes a broad set of recommendations and best practices to guide actions at the regional and local levels. Each local government will need to devise their own adaptation plan based on their specific needs, but the actions in this plan will support those efforts.

Initiation of a Regional Resilience Action Plan

FORMING THE COLLABORATIVE

PHASE 1

Full Collaborative (2022 - 2023)

Members of the Collaborative attended a series of in-person meetings to kick off the development of the RRAP.

Subcommittees (2023)

Four subcommittees were formed, representing each of the four pillars of resilience that had been defined by the collaborative: Environment, Quality of Life, Economic, and Infrastructure.

Goals, Objectives, and Best Practices (2023 - 2024)

Subcommittee members met to define goals and objectives to advance regional resilience. Best practices were developed for each of the four pillars and case studies were identified that exemplified each of these best practices.

Phase 1 Complete (2024)

The RRAP Phase 1 was approved by the steering committee, shared with the Collaborative, and was published online.

Developing the Regional Resilience Action Plan

Draft Actions (Winter 2025)

The writing team reviewed all materials from Phase 1 and drafted actions that aligned with the goals, objectives, and best practices that had been developed by the subcommittees. Draft actions were submitted to the steering committee and the subcomittees for review. Actions were refined based on feedback received.

Narratives for Actions (Spring 2025)

Narratives were developed for each of the actions. Narratives described the action as well as the types of shocks and stressors to be addressed by that action. Subactions were also fleshed out at this time. Narratives were reviewed by the steering committee and subcommittees and revised in accordance with feedback provided.

Partners (Summer 2025)

Potential partners who had been identified by the subcommittees were contacted to determine who would be interested in participating in the implementation of the actions outlined in the RRAP.

Metrics, Relevant Resources, and Funding Sources (2025 - 2026)

During the final phase of planning, the Collaborative will develop metrics to measure success for each action, identify relevant resources to aid in the implementation of actions, and will specify potential funding sources to advance resilience goals.

Regional Resilience Action Planning Structure

Author: Northeast Florida Regional Council

Implementer: Resilient First Coast Collaborative w/ Partners

Beneficiaries: "User Groups" identified below

Action Plan Target User Groups

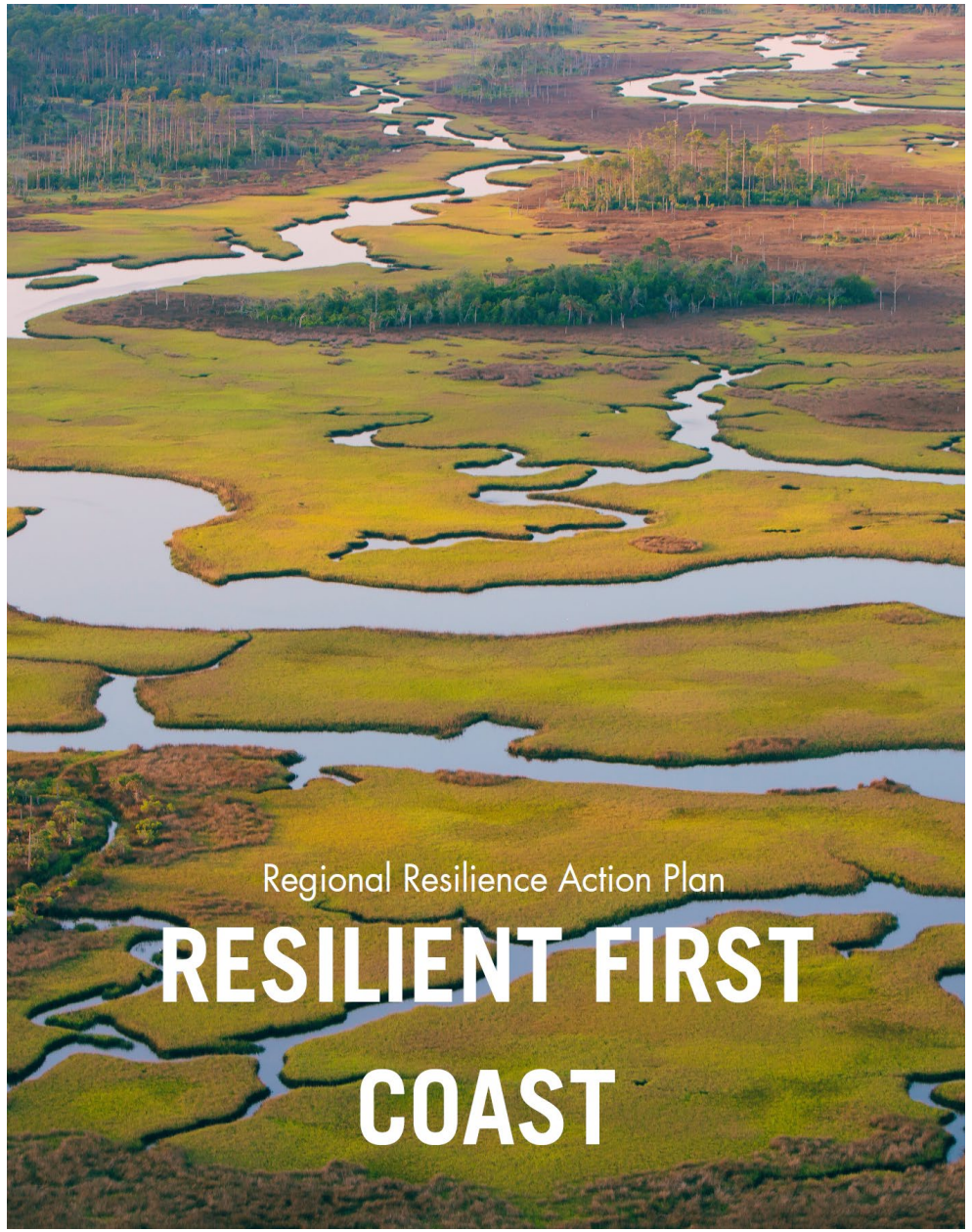
Local Government: Use to inform policy

Regional Entities: Determine actions most beneficial to the region

Businesses, Nonprofits, Others: Use strategies most applicable to their needs

RESILIENT
First Coast

Resilient First Coast has 34 actions and 83 sub actions that outline ways in which regional entities can facilitate cooperation to find effective solutions to regional challenges; describe how the Council and Collaborative can provide resources and guidance to advance work happening at the local level; and set out how the Council and Collaborative can analyze and synthesize regionally significant data to help inform decision making.



A Vision for a Resilient First Coast

CREATE A DURABLE AND ADAPTIVE BUILT ENVIORNMENT

+ Minimize magnitude and cost of damage to infrastructure
+ Improve development practices and policies
+ Decrease utility service disruptions and recovery time
+ Improve transportation and mobility

ENSURE A VIBRANT QUALITY OF LIFE

+ Improve public health and wellness
+ Enhance supply of food, energy, and other critical resources
+ Increase public participation and engagement
+ Minimize disparity

DEVELOP A THRIVING REGIONAL ECONOMY

+ Improve education and employment opportunities
+ Increase housing stability
+ Enhance tourism and historic preservation
+ Increase smart growth and development

PROMOTE A HEALTHY NATURAL ENVIRONMENT

+ Reduce heat stress
+ Increase biodiversity and ecological services
+ Maximize quality of soil, air, and water
+ Minimize erosion, flooding, and storm impacts

Action Organization

FACILITATE

Actions that influence regional resilience in ways that could not be easily accomplished by individual counties alone

GUIDE

Actions that provide resources to counties and organizations throughout the region to inform resilience at the local level (best practices, case studies, and standardized language)

ANALYZE

Actions that generate, report on, and/or synthesize data to inform decision making at the regional and local levels

FACILITATE

Working together to stay ahead of the curve on shocks and stressors that influence our region and advocating for regional scale efforts to facilitate resilience in ways that could not be easily accomplished by local governments.

5 PROMOTE THE CONSERVATION AND RESTORATION OF ECOLOGICALLY SIGNIFICANT NATURAL ECOSYSTEMS

Northeast Florida is home to many vibrant natural areas, including pine forests, hardwood hammocks, salt marshes, and oyster reefs. These natural areas support local wildlife, including threatened and endangered species, like the bald eagle, manatee, and gopher tortoise. In addition to providing habitat, natural ecosystems provide a wide range of ecological benefits and improve regional resilience. Large natural areas covered by trees can help alleviate the urban heat island effect (i.e., increased temperatures in more developed urban areas relative to less developed rural areas). Wetlands and other natural areas also store and treat stormwater that could otherwise contribute to flooding and runoff-related pollution. Protecting natural areas improves quality of life for residents and preserves vital ecosystem services. By tackling conservation and restoration from a regional perspective, the Collaborative will assist local governments in prioritizing projects, maximizing the benefits of conservation and restoration efforts in Northeast Florida.

5.1 Support efforts to conserve and restore estuarine and freshwater wetlands

Wetlands are critically important for water storage. For instance, during heavy rainfall events, one acre of wetlands can store 1.5 million gallons of floodwater (5). Wetlands also improve water quality and provide habitat for native wildlife. Coastal wetlands, like salt marshes and mangroves, can also help protect shorelines from erosion. It is estimated that wetlands provide $23 billion dollars in coastal protection services annually (5). The regulatory framework of the state, particularly 373 F.S. (Environmental Resource Permitting) governs activities that impact wetlands and other surface waters, including dredging, filling and stormwater management systems. Unfortunately, wetlands are being lost and degraded in Florida and globally.

Preserving wetlands ensures the continued provision of valuable ecosystem services. Restoration of wetlands can reestablish functions that have been lost due to habitat degradation. The Collaborative will support the conservation and restoration of wetlands by facilitating discussions between wetland ecologists, hydrologists, land managers, and decision makers. Improved coordination will provide insights into restoration opportunities, such as identifying potential restoration sites, exploring novel techniques, and helping to prioritize conservation projects.

The Collaborative will also connect local governments in our region with other municipalities that have successfully preserved wetlands, such as Orlando. Likewise, the Collaborative can connect restoration practitioners in our region with those involved in successful restoration projects elsewhere, like the Bolsa Chica Wetland Restoration Project in California.

5.2 Encourage biodiversity by protecting native ecosystems and planting native species

Redundancy improves resilience, which is why having a wide range of species (i.e., biodiversity) makes natural ecosystems more resilient to disturbances, such as hurricanes and diseases. Preserving native biodiversity requires strategic land management, such as removal of invasive plants and implementation of prescribed burns. Where native plant communities have been disturbed, planting native species can help restore ecosystem services by improving water conservation and providing habitat for local wildlife.

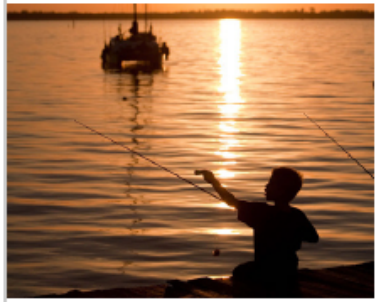
The Collaborative will facilitate the protection of native ecosystems by working with the First Coast Invasive Working Group to provide training on invasive plant species and by discouraging the sale of invasive plants across the region. Moreover, the Collaborative will work with the Native Plant Society to educate local governments and the public about the importance of protecting and planting native plants.

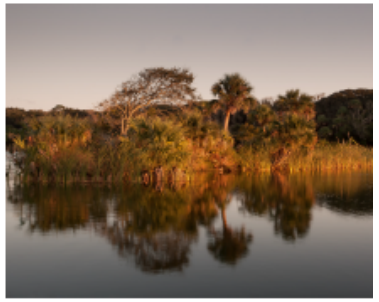
Decision-makers will be more likely to promote the protection of native ecosystems if they are aware of the valuable services and benefits these ecosystems provide. Therefore, the Collaborative will lead efforts to inform decision-makers about the economic benefits provided by natural ecosystems and will encourage the development of policies that protect natural areas and native species.

5.3 Support national, state, and local parks and nature preserves

Nature preserves and parks are valuable community resources, providing public access to natural ecosystems and valuable recreational opportunities. Parks and nature preserves improve property values and promote tourism. These spaces also improve quality of life for residents, enabling physical activity and encouraging mental wellbeing. Previously, the Council provided support in convening local professionals for an Ecotourism and Trails Steering Committee to share information about regional trail work, share information about funding opportunities, and identify gaps in any trail work that the Council could support. Additionally, the Council secured assistance from the National Park Service's Rivers Trails and Conservation Assistance Program for work on three different projects across the region, which are currently underway.





Moving forward, the Collaborative will support national, state, and local parks by expanding the reach of non-profit organizations that promote the parks, such as the Timucuan Parks Foundation. The Collaborative will advocate for the preservation of existing nature preserves and encourage the creation of new nature preserves.

Moreover, the Collaborative will advocate for the protection and acquisition of properties that are needed to connect parks and preservation areas throughout the region. In this way, the Collaborative will support public lands that provide vital resilience functions.

5.4 Promote health of marine and estuarine ecosystems that support fisheries

Marine and estuarine ecosystems are the backbone of Northeast Florida both geographically and culturally, which is why these systems are protected at the state and federal level, e.g., Environmental Resource Permitting (373 F.S.) and Section 404 of the Clean Water Act. However, marine and estuarine ecosystems are being impacted by a range of stressors, including nutrient runoff and shoreline hardening. Regional collaboration is needed to address these impacts and protect valuable marine and estuarine resources.

Commercial and recreational fisheries are economically important and support local businesses. The Collaborative will support fisheries by promoting the health of marine and estuarine ecosystems through education and outreach. Educational campaigns sponsored by the Collaborative will help residents understand the consequences of personal pollution and help prevent trash and pollutants from entering important habitats, including the ocean, rivers, and tributaries. The Collaborative will also provide educational seminars and conduct community outreach on the importance of estuarine habitats that support fisheries, like salt marshes and oyster reefs. The Collaborative will continue to work with the South Atlantic Salt Marsh Initiative to identify coastal areas throughout the region that are critical for the landward migration of salt marshes and will work with local governments to preserve and protect these areas, which will provide habitat for commercially and recreationally important fisheries in the future.

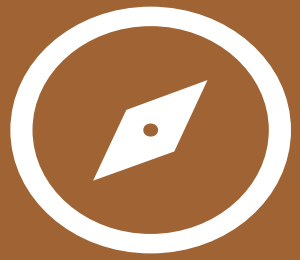
5.5 Support efforts to protect and restore beaches and dunes

Beaches draw many visitors to Northeast Florida, supporting the tourism that drives northeast Florida's economy. Beaches and sand dunes provide protection for beachfront properties, reducing the impacts of coastal erosion and storm surge. Dune plants stabilize the sand and provide habitat for wildlife. The Collaborative will help protect beaches and dunes by educating decision makers and members of the public about their ecological and economic significance.
The Collaborative will also support beach and dune restoration by bringing together regional experts to discuss upcoming projects, share innovative ideas, and identify funding opportunities.

IMPLEMENTATION PARTNERS

City of Jacksonville / Conserve Nassau / Groundwork Jacksonville / Florida Fish and Wildlife Conservation Commission / Guana Tolomato Matanzas National Estuarine Research Reserve / Jacksonville University Marine Science Research Institute / Matanzas Riverkeeper / Nassau County Conservation Land Aquisition and Management / North Florida Land Trust / St. Johns County Land Acquisition Management Program / St. Johns Riverkeeper / St. Marys Riverkeeper / Timucuan Park Foundation / Trust for Public Land / University of Florida - Whitney Laboratory / University of Florida IFAS Extension Baker, Clay and Duval Counties / Urban Land Institute North Florida / Waterfront Alliance & WEDG® (Waterfront Edge Design Guidelines)

GUIDE



Developing best practices, writing standardized language, compiling case studies and other resources and references to aid local governments in quickly and effectively deploying resilient solutions.

17 SUPPORT SHORELINE STABILIZATION OF NATURAL AND MODIFIED SHORELINES

Shorelines are the first line of defense against erosion and storm damage. Stabilizing shorelines is necessary to protect upland areas from the impacts of wave energy, boat wakes, and storm surge. Shoreline stabilization projects must be built with the future in-mind and must account for future sea-level rise. Therefore, it is necessary for those working on these projects to stay abreast of future sea-level change projections. Making sure this data is publicly accessible and easily accessible can help ensure projects are designed appropriately. Both nature-based solutions and armoring are used to protect shorelines.

Nature-based solutions provide a suite of co-benefits in addition to mitigating erosion, including improving water quality and enhancing wildlife habitat. In Northeast Florida, nourishment is standard practice for protecting beaches and defending coastal properties from sea-level change and storm surge. However, shoreline armoring via sea walls and / or riprap is standard practice for protecting riverine shorelines from erosion and sea-level change. By providing information on best practices for shoreline stabilization, including nature-based solutions and armoring, the Collaborative will make shorelines throughout the region more resilient.

17.1 Draft example ordinances for shorelines stabilization practices

State and federal regulations govern shoreline stabilization practices and protect against adverse impacts to coastal ecosystems, e.g., Florida's Environmental Resource Permitting (373 F.S.) and Section 404 of the Clean Waters Act and Section 10 of the Rivers and Harbors Act. Additionally, coastal municipalities have established ordinances that regulate shoreline stabilization practices to maximize their efficacy and to reduce environmental impacts. For example, municipalities typically regulate sea wall height, and some account for future conditions. Many municipalities regulate the type of materials that can be used for armoring. A few municipalities require nature-based solutions to be considered before a sea wall or other armoring is permitted. Likewise, some municipalities are developing dune protection ordinances. By compiling language used in such ordinances, the Collaborative will provide examples for local governments that can be used to guide the development of new ordinances that will improve local building practices and increase the resilience of shorelines. For example, the Collaborative can learn from Tampa, who has adopted an ordinance to regulate seawall construction, repair, and maintenance to address flooding and erosion.

17.2 Encourage use of living shorelines and nature-based solutions where possible

Nature-based solutions offer a wide range of ecological benefits, including improving water quality. It makes sense to use nature-based solutions, like living shorelines, where they are feasible. Such work has been done successfully in St. Petersburg and elsewhere across Florida. However, living shorelines will not be successful in all areas. Some areas may have too high wave energy due to a large fetch, or they may not have the right bathymetry to support a living shoreline. It is, therefore, necessary to evaluate where living shorelines and other nature-based solutions can be installed successfully and to encourage their use where conditions are appropriate. The Collaborative will promote the use of nature-based solutions, including living shorelines, by providing information to local governments and coastal contractors about construction best management practices, as well as opportunities for and limitations of nature-based solutions.

IMPLEMENTATION PARTNERS

Conserve Nassau / Florida Fish and Wildlife Conservation Commission / Florida Institute for Built Environment Resilience / Guana Tolomato Matanzas National Estuarine Research Reserve / Jacksonville University Marine Science Research Institute / NOAA Office of Coastal Management / Northeast Florida Estuarine Restoration Team / St. Johns River Water Management District / University of Florida - Whitney Laboratory / University of Florida IFAS Extension Baker County / US Army Corps of Engineers

GUIDE

RESILIENT
First Coast

ANALYZE

Collecting, synthesizing, and objectively interpretating data to inform local and regional resilience actions. Investigating regional shocks and stressors to inform decisions at the local and regional levels.

27 CREATE AN INVENTORY OF PROJECTS UTILIZING NATURE BASED SOLUTIONS

Nature-based solutions are cost-effective methods for managing stormwater and provide a suite of co-benefits, which has prompted municipalities in Northeast Florida to increase their investment in nature-based solutions. As the use of nature-based solutions increases in Northeast Florida, it will be helpful for the Collaborative to maintain an inventory of projects, including key information such as each project's location, size, nature-based solutions implemented, permit numbers, timing of construction / completion, and point(s)-of-contact. Metrics of success will also be tracked, including water storage capacity and / or water quality improvements achieved by each of the projects. This information, including quantitative measures of nutrient reduction, can then be used by local governments to support grant applications. Local governments can use this information to identify projects that have been successfully implemented in our region and to establish a network of contacts to facilitate future projects.

IMPLEMENTATION PARTNERS

Conserve Nassau / Florida Institute for Built Environment Resilience / NOAA Office of Coastal Management / St. Johns River Water Management District / US Army Corps of Engineers

28 TRACK WATER QUALITY TRENDS

Northeast Florida's water resources are the foundations of the region's ecological health, economic vitality, and quality of life. The region's rivers, estuaries, and coastal waters face mounting pressures from urban development, altered hydrology, increased stormwater runoff, and climate related impacts including flooding and sea level rise. These stressors can degrade water quality, threatening both natural ecosystems and the communities that depend on clean water resources. The state's regulatory framework, particularly 403.067 F.S. and 62-303 F.A.C., guide the identification of impaired waters and the subsequent establishment of TMDLs and BMPAs which are designed to improve water quality and track progress towards restoration.

While several agencies and entities currently conduct water quality monitoring in the region, including SJRWMD, FDEP, USGS, the St. Marys River Management Committee, and municipalities like City of Jacksonville, coordination between these efforts is limited. A coordinated regional approach to water quality monitoring is essential to protect vital resources, inform restoration efforts, and enhance Northeast Florida's climate resilience.

The Collaborative will maintain an up-to-date inventory of all agencies and entities conducting water quality monitoring and analysis to facilitate ongoing coordination and knowledge sharing. The Collaborative will also bring these agencies and entities together to establish a community of practice focused on regional coordination. Further, by initiating dialogues to establish standardized data collection and reporting protocols in the region, The Collaborative will help create a more cohesive understanding of water quality trends across Northeast Florida. The Collaborative could also amplify outreach for the State of the Lower St. Johns River and other water quality reports throughout the region. Further, the Collaborative could also provide support to fill critical data gaps in under-monitored tributaries, gather input to track emerging containments like per- and polyfluoroalkyl substances (PFAS), and help build awareness through citizen science programs.

IMPLEMENTATION PARTNERS

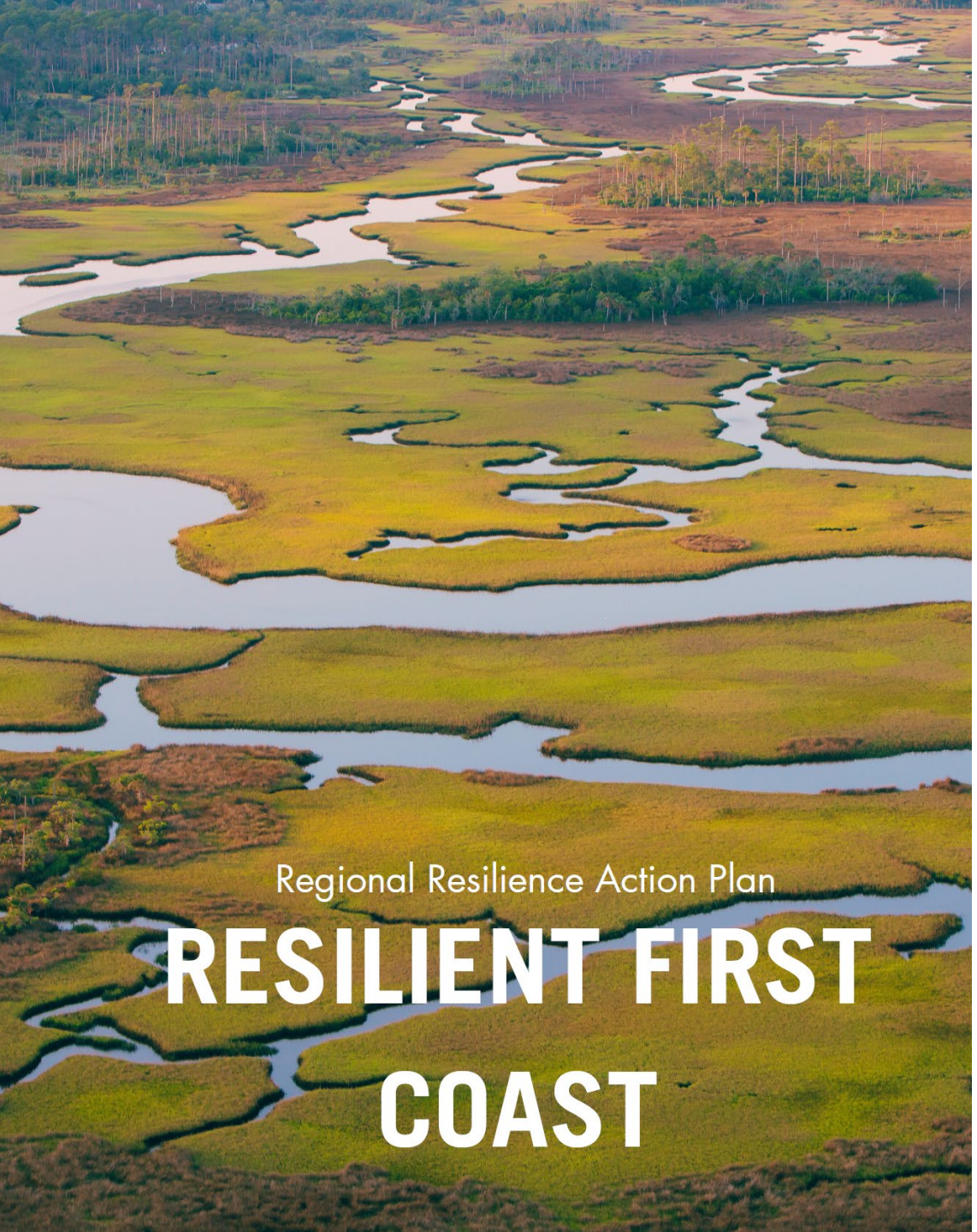
Clay Soil and Water Conservation District / Flagler College Department of Natural Sciences / Florida Fish and Wildlife Conservation Commission / Florida Institute for Built Environment Resilience / Jacksonville University Marine Science Research Institute / Matanzas Riverkeeper / St. Marys Riverkeeper / St. Marys River Management Committee / St. Johns Riverkeeper / St. Johns River Water Management District / University of Florida IFAS Extension Duval County

Next Steps: Phase 3

METRICS

FUNDING

RESOURCES



Thank you!

To read the full plan visit:
https://resilientfirstcoast.com

If you have any questions, feel free to reach out!

Fara Ilami, FIlami@nefrc.org

NEFRC NORTHEAST FLORIDA REGIONAL COUNCIL

RESILIENT First Coast