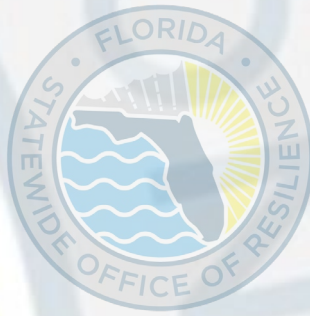


# Adapting Florida for the Future

## *Putting Resilience Into Action Statewide*

Wesley R. Brooks, Ph.D.  
Chief Resilience Officer





Flood mitigation and resilience activities  
are ***a means to improve quality of life***  
for Floridians through expanded  
**economic opportunity** and enhanced  
**environmental vitality!**



# Escambia County



## Stormwater Treatment



### Where It Goes

Jones Creek is one of three freshwater creeks that feed into Bayou Chico. Surrounded by military, residential and industrial areas, the waters of Jones Creek can carry oil, gas, trash, animal waste and other pollutants into Bayou Chico and Pensacola Bay.

### A Natural Solution

Swamps and wetlands are nature's filters. Slow-moving streams help slow down water's energy, allowing it to gather and collect in low-lying areas. Sediments and other heavy solids naturally settle to the bottom. Plants help filter excess nutrients from the water and bacteria break down organic matter. When the water leaves the swamp, it is much cleaner than when it went in!

### Working Together

By restoring Jones Creek and adding water treatment features, Escambia County is working with nature to improve water quality in Jones Creek and the Bayou Chico Watershed. Manmade structures like stormwater ponds and rock vanes help treat excess urban runoff and restored vegetation improves natural filtration and provides valuable habitat for birds, mammals, amphibians and reptiles!



Rock vanes (left) and stormwater ponds (right) used to help treat runoff into Jones Creek.

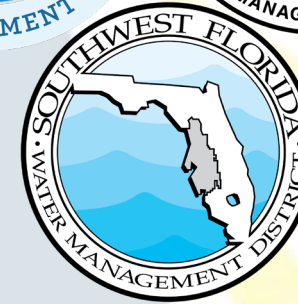


# Fernandina Beach, Nassau County





# STATE AGENCIES WITH ROBUST RESILIENCE MISSIONS

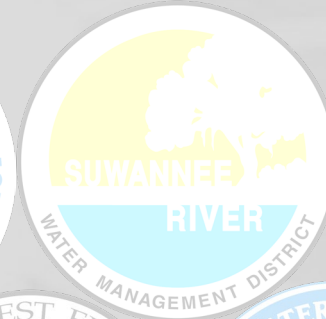
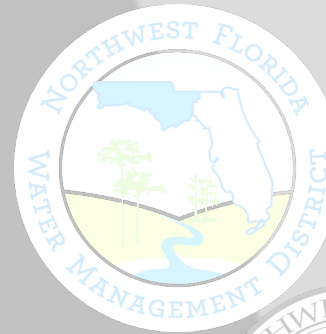
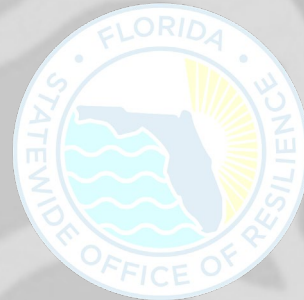


FLORIDACOMMERCE





# STATE AGENCIES WITH ROBUST RESILIENCE MISSIONS

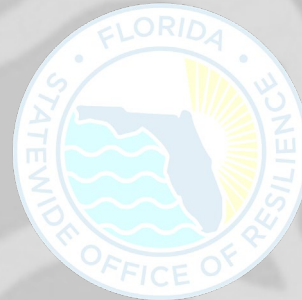


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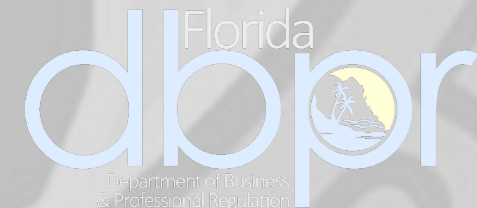
Florida  
dbpr  
Department of Business  
& Professional Regulation



# STATE AGENCIES WITH ROBUST RESILIENCE MISSIONS

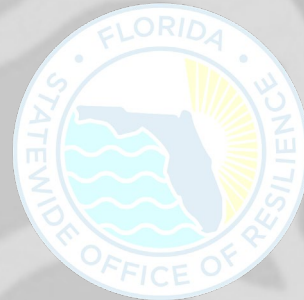


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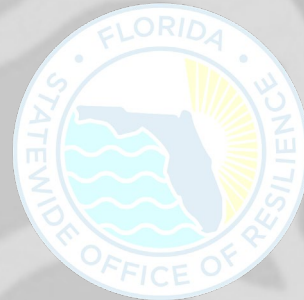


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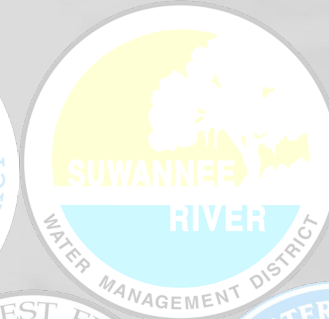
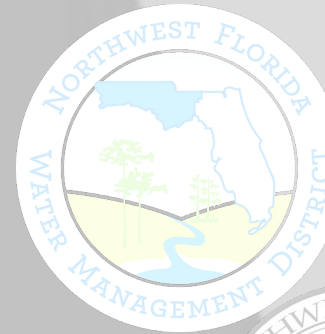
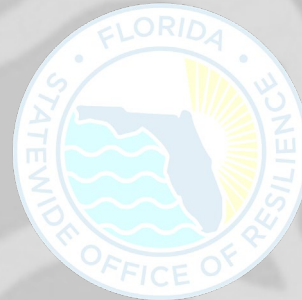


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& Professional Regulation



# STATE AGENCIES WITH ROBUST RESILIENCE MISSIONS



**FLORIDA**  **COMMERCE**

Florida  
**dbpr**  
Department of Business  
& Professional Regulation



# STATE AGENCIES WITH ROBUST RESILIENCE MISSIONS

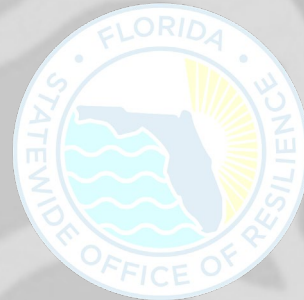


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Florida  
dbpr  
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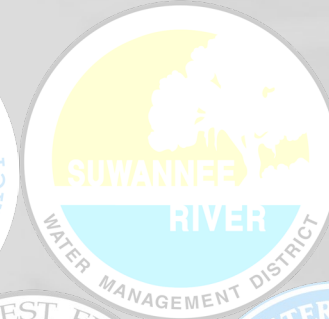
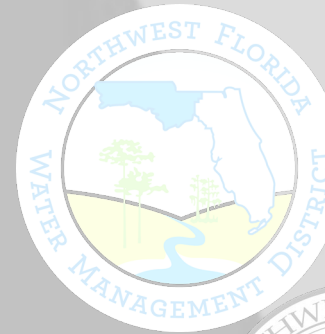


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# STATE AGENCIES WITH ROBUST RESILIENCE MISSIONS

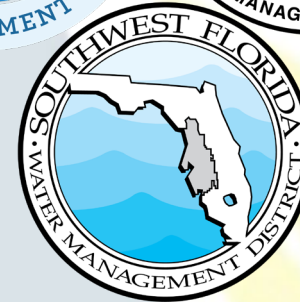


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# UNDER GOVERNOR DESANTIS, STATE AGENCIES ARE MANAGING MORE THAN \$9 BILLION IN RESILIENCE INVESTMENTS



FLORIDACOMMERCE





# Promoting a Resilient Recovery

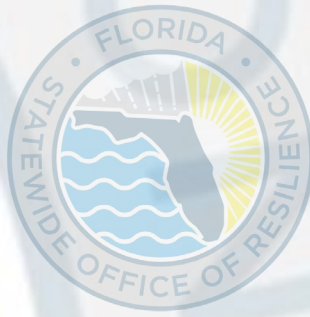
## Governor DeSantis's EO 23-06

- ✓ Expedite Hurricane Recovery & Beach Nourishment
- ✓ Continue funding Statewide Resilience Plan
- ✓ Complete Local Vulnerability Assessments
- ✓ Initiate Florida's Coral Reef Restoration & Recovery
- ✓ Assure FDOT Resilience & Water Quality Planning Coordination





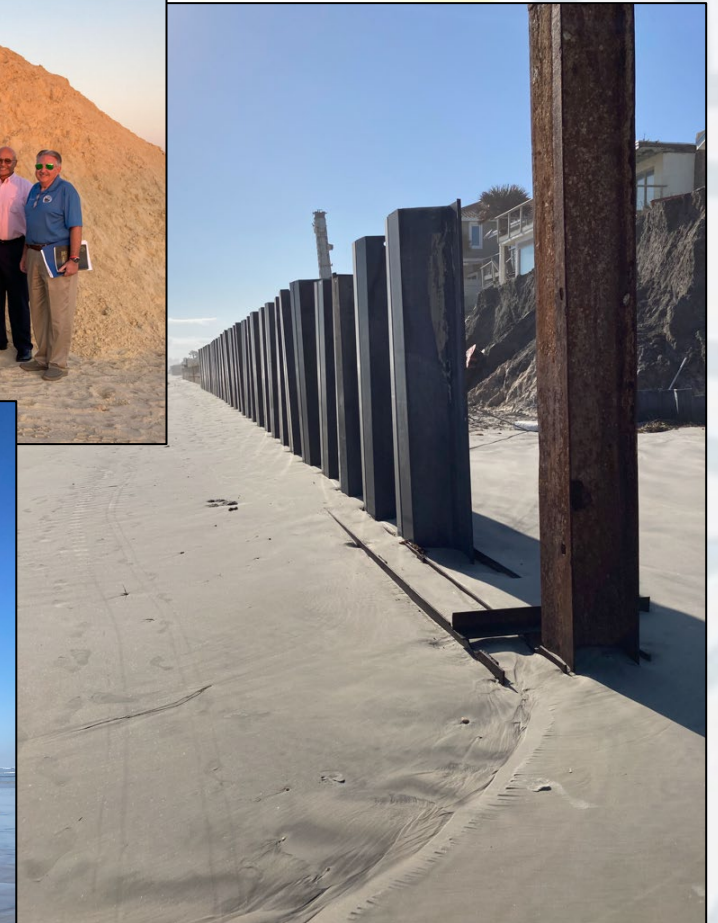
# Hurricane Recovery & Beach Nourishment



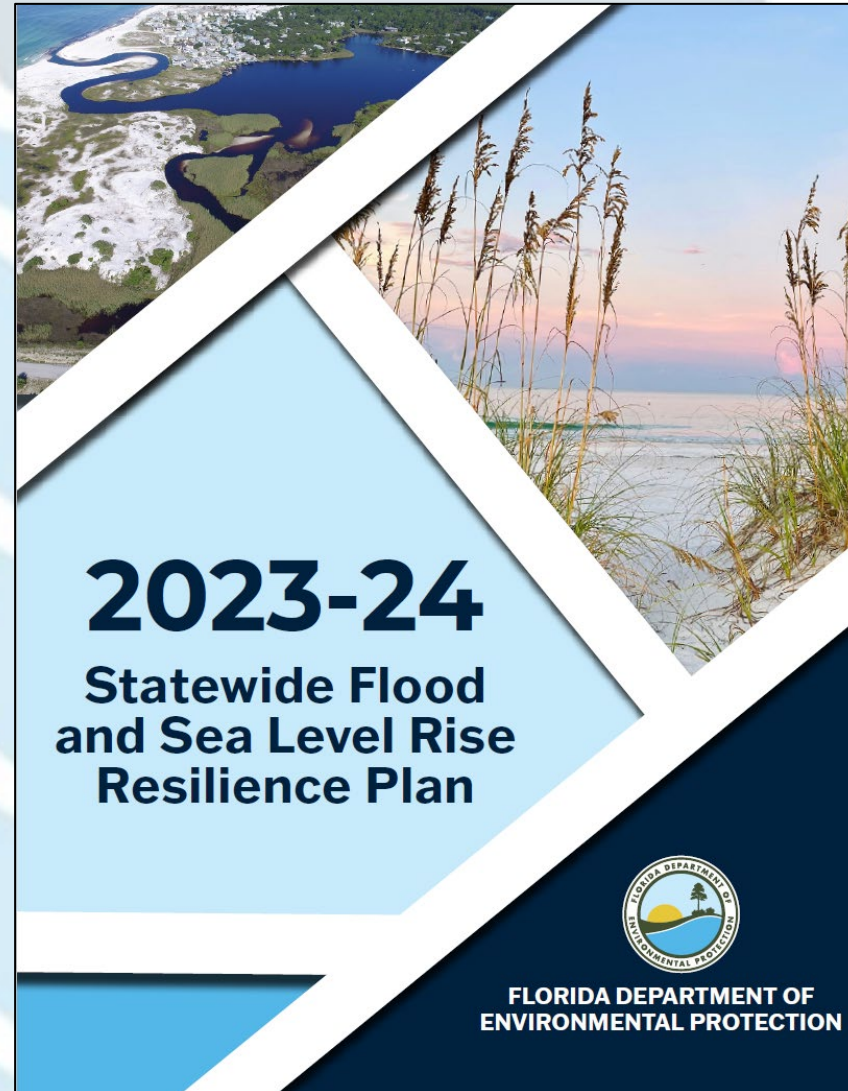
## *Hurricanes Ian and Nicole Recovery Plan for Florida's Beach and Dune System*

**Florida Department of Environmental Protection  
Office of Resilience and Coastal Protection**

**December 9, 2022**

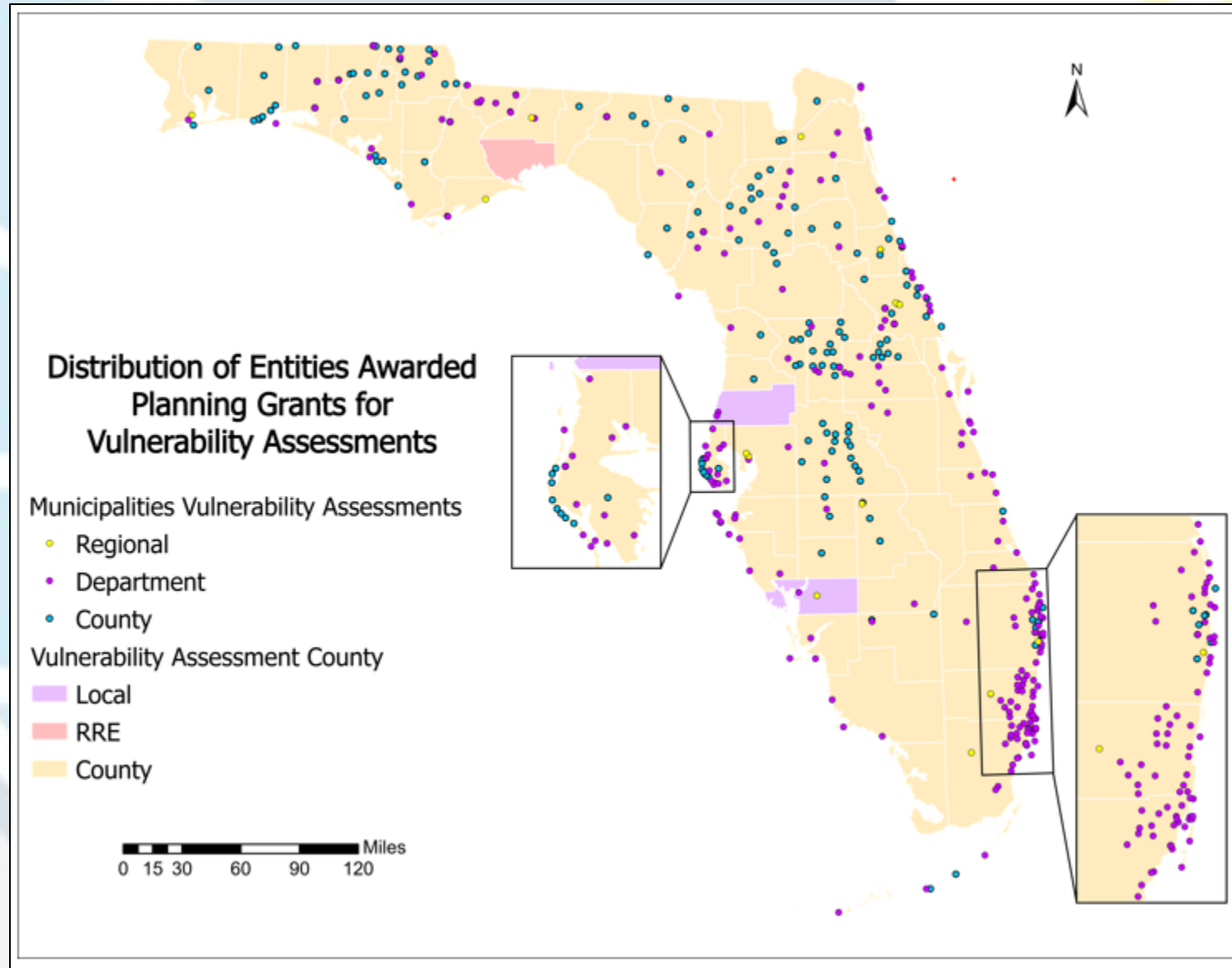


# Statewide Resilience Plans





# Local Vulnerability Assessments



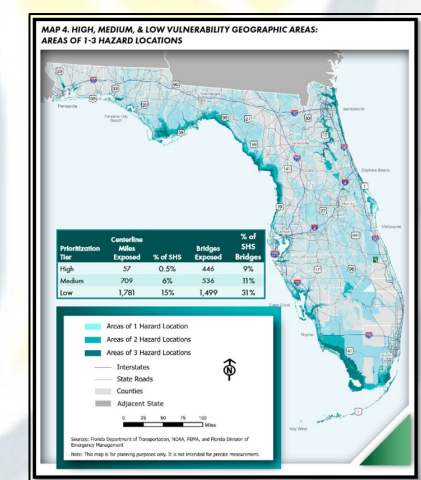
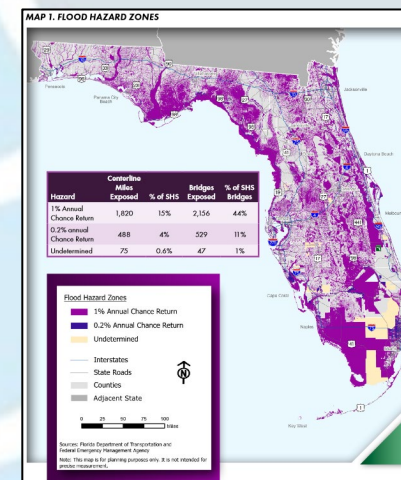
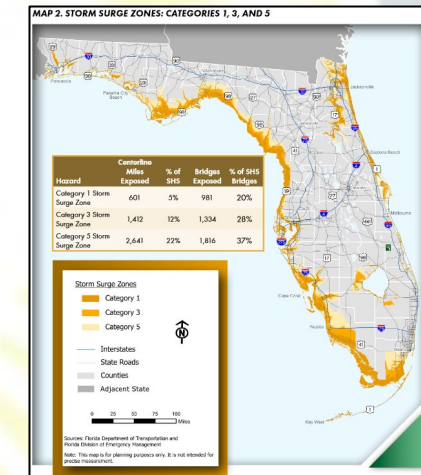
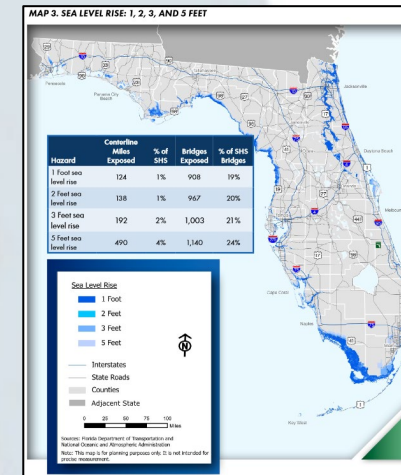
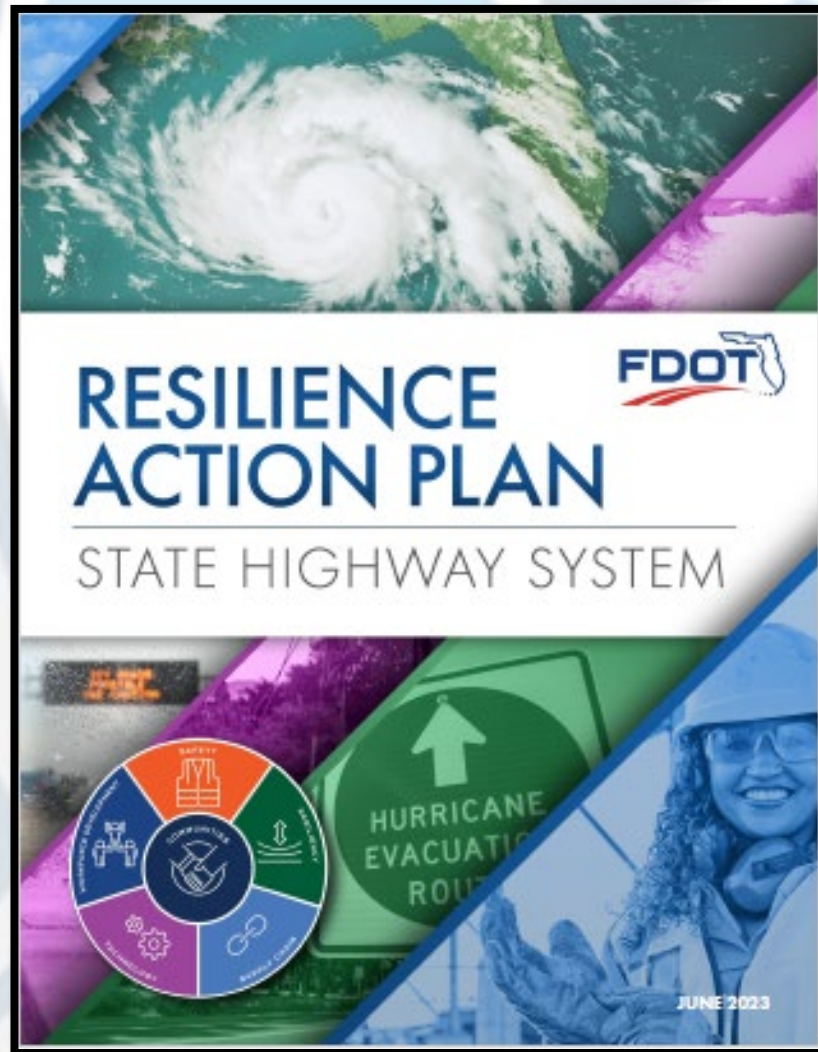
# Florida's Coral Reef Restoration & Recovery Initiative



The FCR<sub>3</sub> Initiative aims to develop the **infrastructure**, **technology**, **skilled workforce**, and **logistics** necessary by 2050 to support the long-term recovery of no less than 25% of Florida's Coral Reef.



# FDOT Resilience Planning



# Promoting a Resilient Recovery Hurricanes

Ian, Nicole, Idalia, Debby, Helene, & Milton



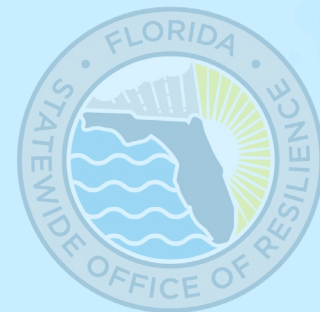
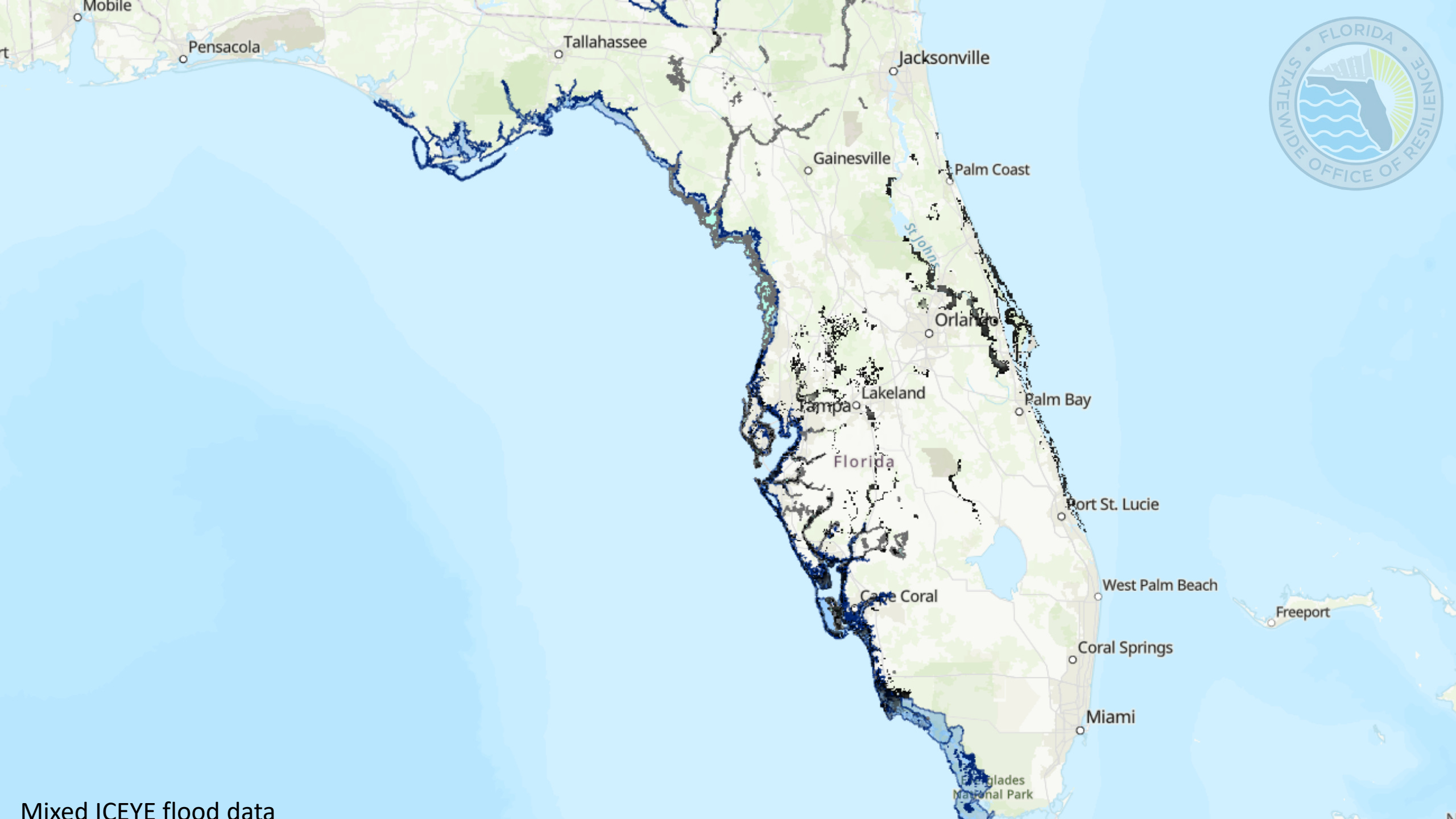


# Promoting a Resilient Recovery Hurricanes



**Ian, Nicole, Idalia, Debby, Helene, & Milton**

- Flooding is often sensational, but rarely surprising...



Mixed ICEYE flood data



# Promoting a Resilient Recovery Hurricanes



**Ian, Nicole, Idalia, Debby, Helene, & Milton**

- Flooding is often sensational, but rarely surprising...
- Structural impacts appear to correlate strongly with year built





# Promoting a Resilient Recovery Hurricanes



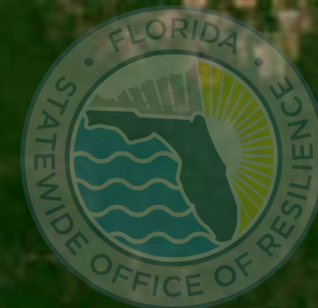
## Ian, Nicole, Idalia, Debby, Helene, & Milton

- Flooding is often sensational, but rarely surprising...
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- Natural infrastructure provides real flood mitigation benefits









**Spring Creek  
Unit - Big  
Bend Wildlife  
Management  
Area**

Salem

**Tide Swamp  
Unit - Big  
Bend Wildlife  
Management  
Area**

# Promoting a Resilient Recovery Hurricanes



## Ian, Nicole, Idalia, Debby, Helene, & Milton

- Flooding is often sensational, but rarely surprising...
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- Natural infrastructure provides real flood mitigation benefits
- Economic damages are largely explained by land use, development, and population growth patterns



# The real reason billion-dollar disasters like Hurricane Helene are growing more common



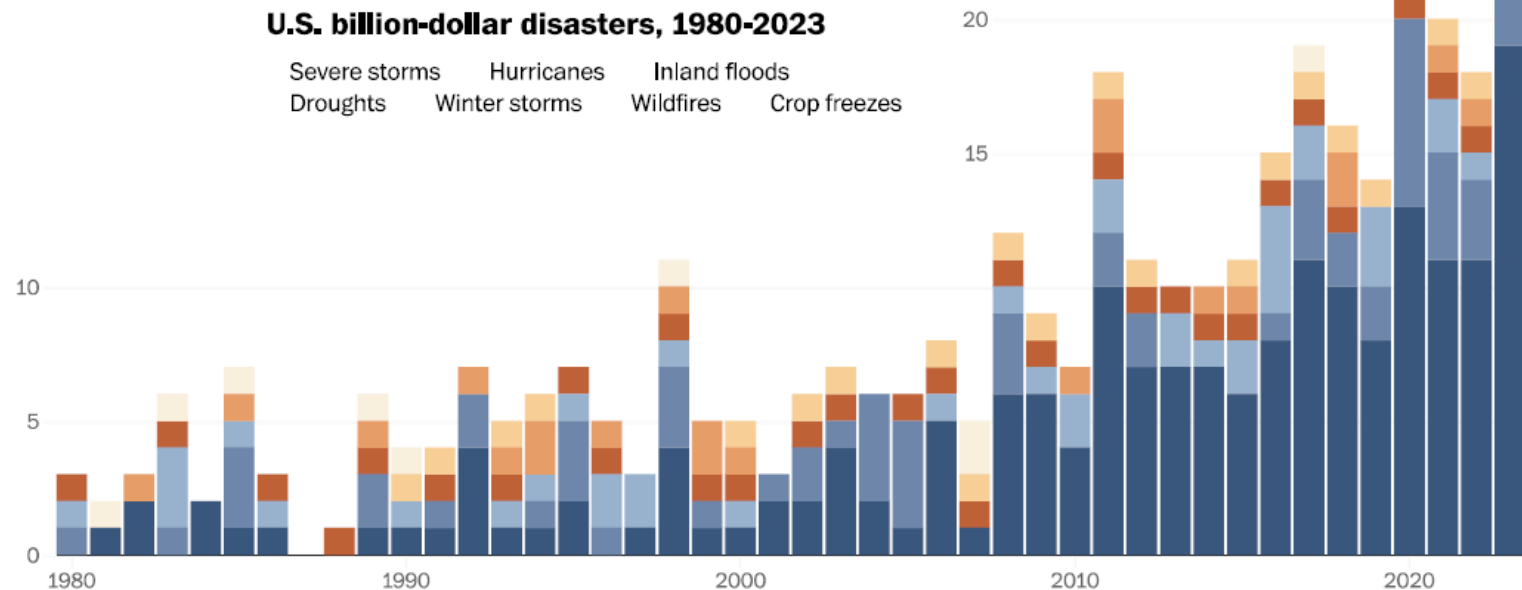
Analysis by [Harry Stevens](#)

October 24, 2024 at 5:30 a.m. EDT

🔊 21 min ↗ 📌 🗨 22

**IT RISES LIKE A MOUNTAIN**, up and to the right, and it has become one of the most potent illustrations of the perils of man-made global warming. It's a chart showing the number of billion-dollar weather disasters that have struck the United States since 1980. When the toll is tallied from hurricanes Helene and Milton, they will become the 397th and 398th entries in the database.

## U.S. billion-dollar disasters, 1980-2023



Source: [National Oceanic and Atmospheric Administration](#). Chart does not include 20 events from 2024 because the year is incomplete.



# The real reason billion-dollar disasters like Hurricane Helene are growing more common

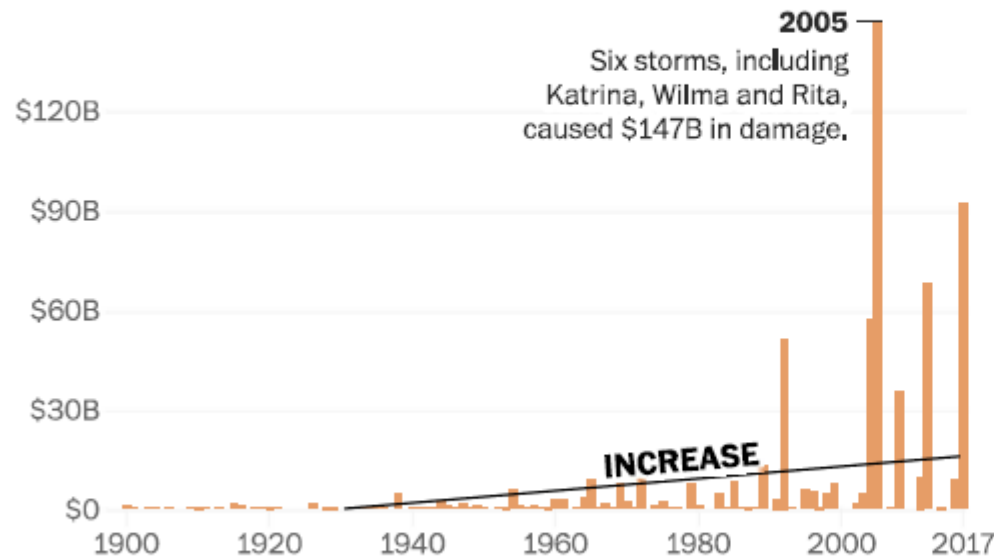


Analysis by [Harry Stevens](#)

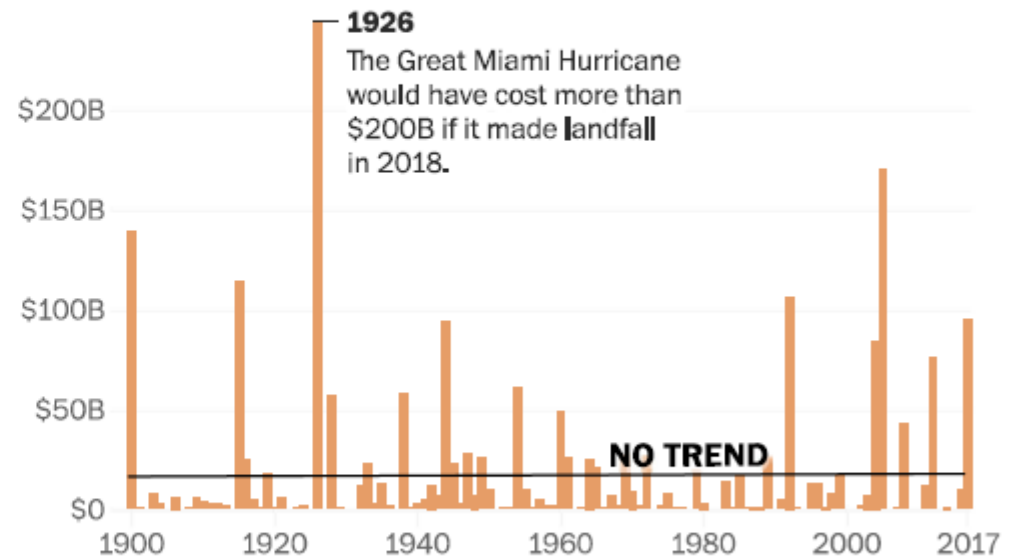
October 24, 2024 at 5:30 a.m. EDT

## Hurricane damage in the U.S., 1900-2017

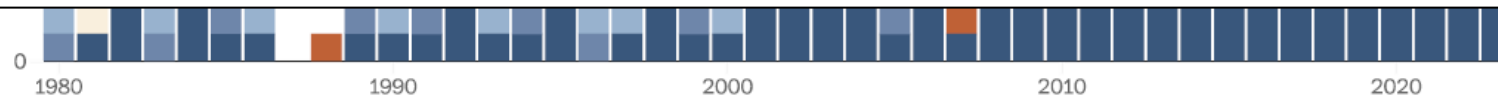
Adjusted for **inflation**



Adjusted for **inflation, population and wealth**

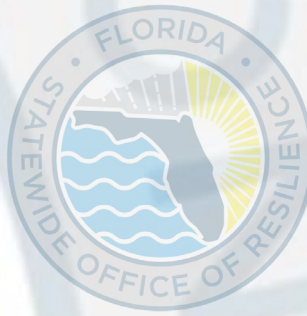


Source: [Weinkle et. al. 2018](#). Losses are in 2018 dollars.



Source: [National Oceanic and Atmospheric Administration](#). Chart does not include 20 events from 2024 because the year is incomplete.

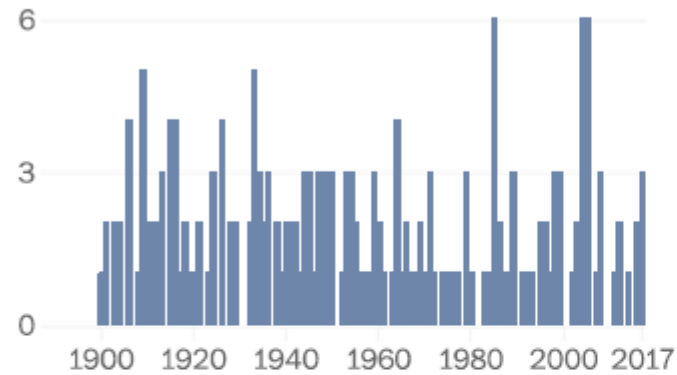




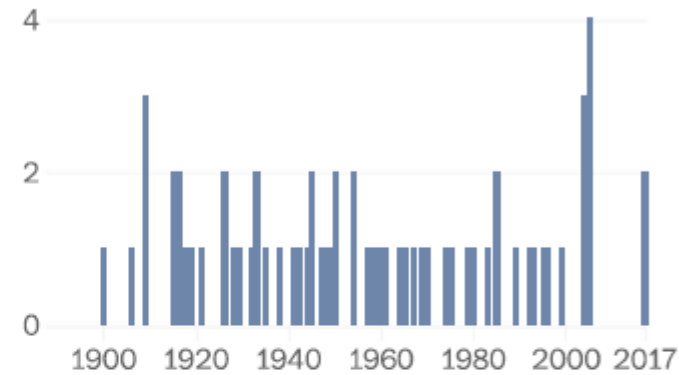
# The real reason billion-dollar disasters like Hurricane Helene are growing more common

## Factors influencing U.S. hurricane damage, 1900-2017

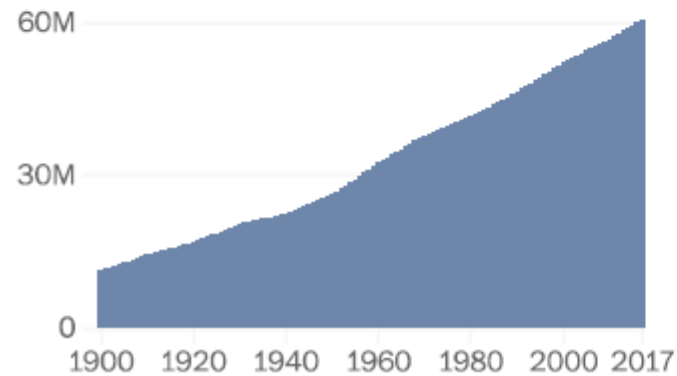
**Hurricanes** making landfall



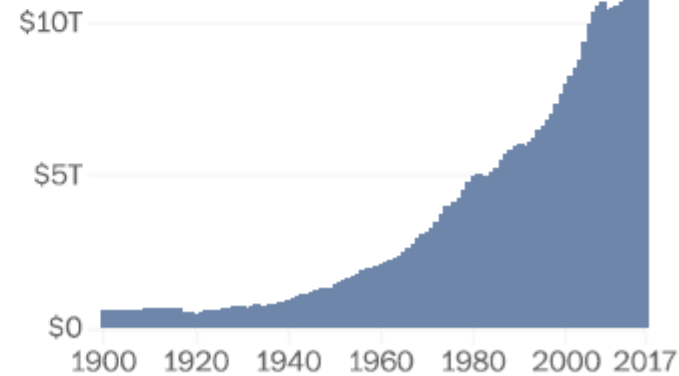
**Major hurricanes** making landfall



**Population** in coastal counties



**Wealth** in coastal counties



Source: Weinkle et. al, 2018, U.S. Census Bureau, Andrew J. Van Leuven and NOAA. Major hurricanes are defined as Category 3 or higher. Wealth is in 2018 dollars.

1980 1990 2000 2010 2020

# Promoting a Resilient Recovery Hurricanes



## Ian, Nicole, Idalia, Debby, Helene, & Milton

- Flooding is often sensational, but rarely surprising...
- Structural impacts appear to correlate strongly with year built
- Natural infrastructure provides real flood mitigation benefits
- Economic damages are largely explained by land use, development, and population growth patterns
- Public infrastructure failures are not always *engineering* failures









# Promoting a Resilient Recovery Considerations for **Future Planning & Growth**

- A policy goal of *eliminating* flood risk is neither practical nor economically feasible





# Promoting a Resilient Recovery Considerations for **Future Planning & Growth**

- A policy goal of *eliminating* flood risk is neither practical nor economically feasible
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# Promoting a Resilient Recovery Considerations for **Future Planning & Growth**

- A policy goal of *eliminating* flood risk is neither practical nor economically feasible
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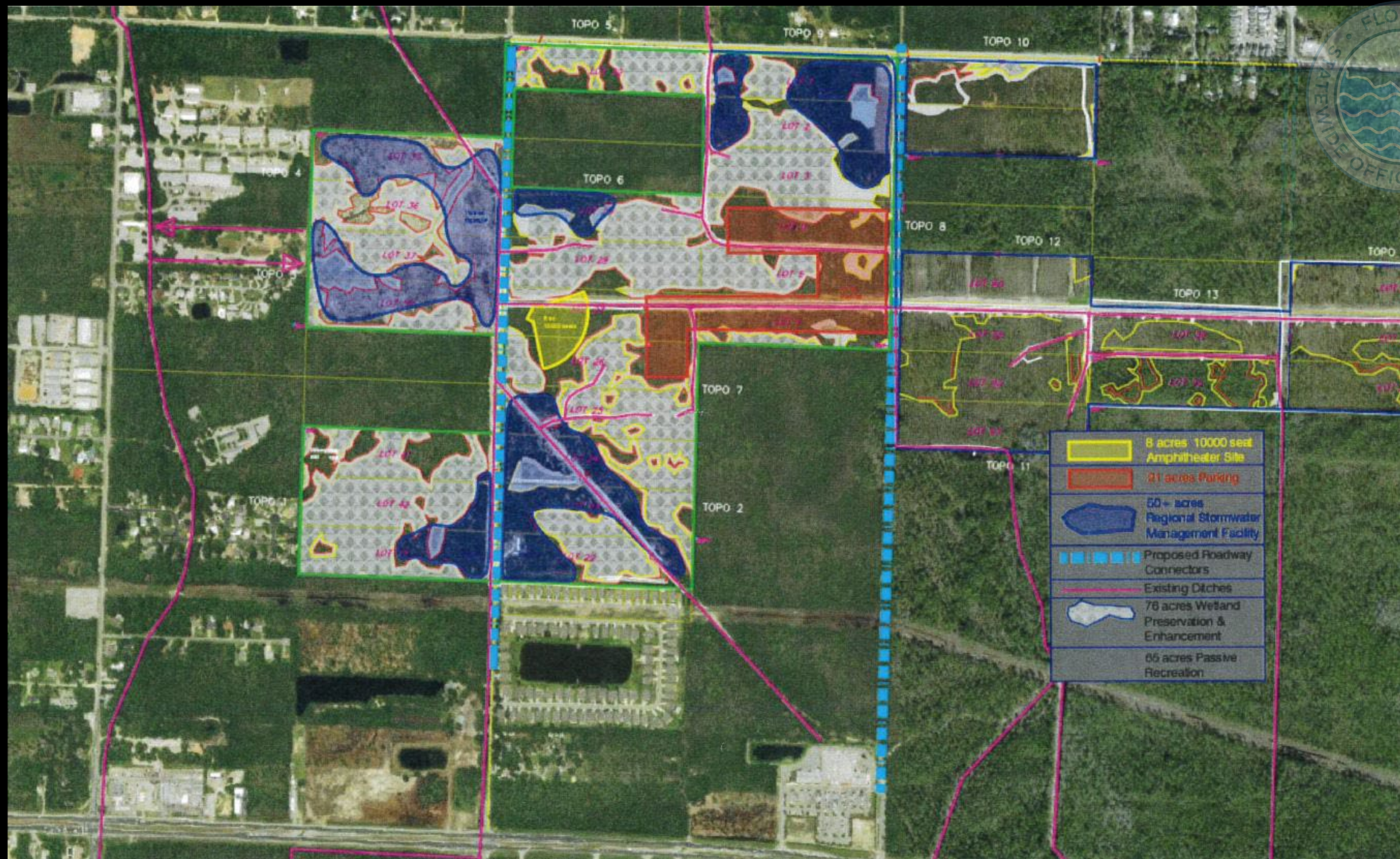
















# Promoting a Resilient Recovery Considerations for **Future Planning & Growth**

- A policy goal of *eliminating* flood risk is neither practical nor economically feasible
- Many areas of the state would benefit from watershed or basin-level flooding assessments and high-resolution modeling
- Adaptation efforts can more than pay for themselves if planned and executed correctly
- Creating and preserving economic activity and wealth is a necessary precondition for effective resilience



# Promoting a Resilient Recovery Considerations for Conservation



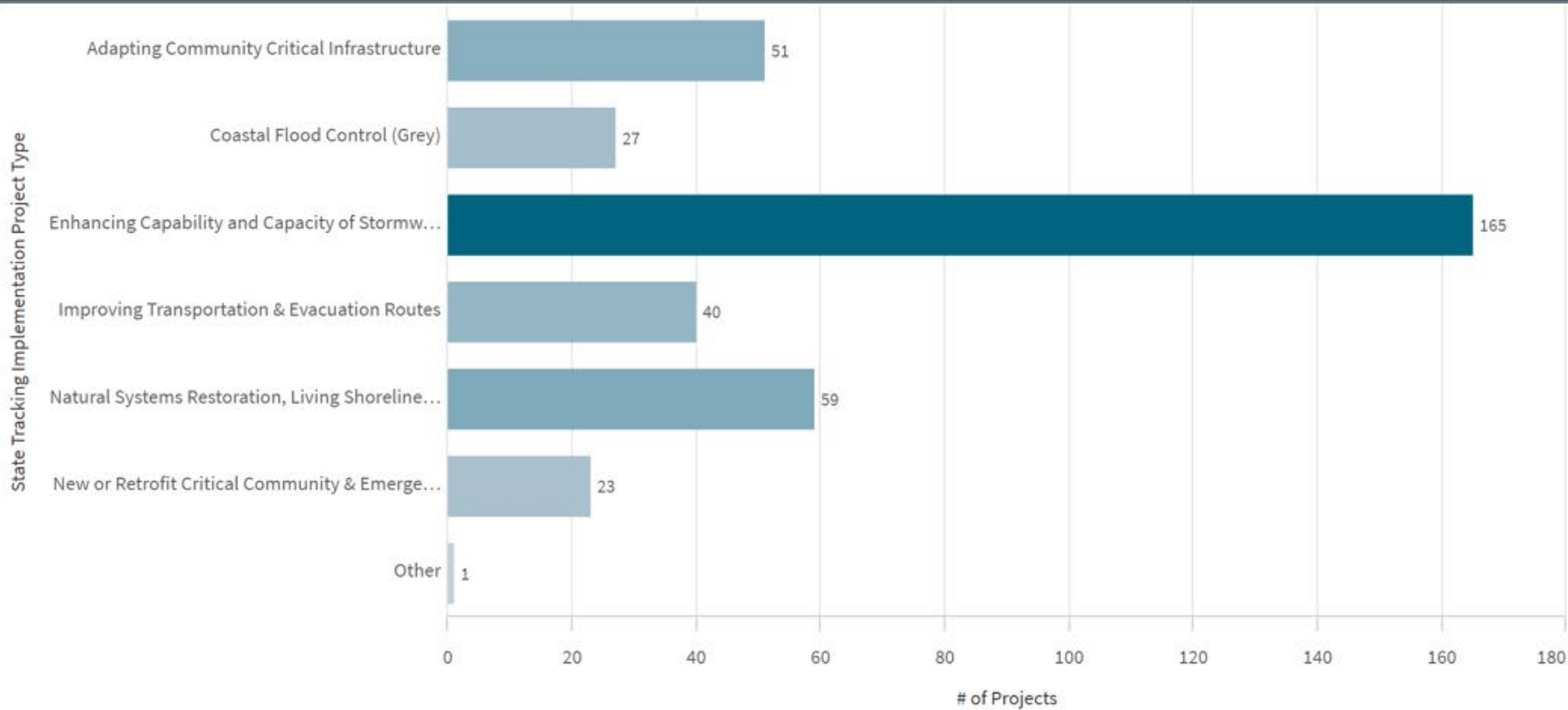
- Significant opportunities remain to preserve and improve floodplain function and stormwater management across the state





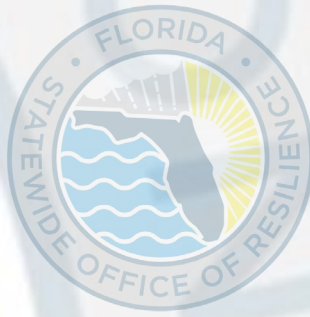
# IMPLEMENTATION GRANTS

## PROJECT TYPE





# Promoting a Resilient Recovery Considerations for Conservation

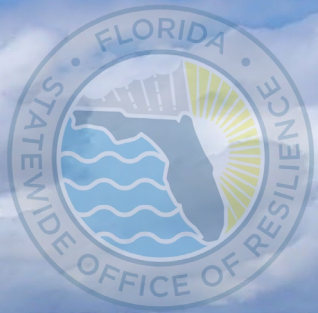


- Significant opportunities remain to preserve and improve floodplain function and stormwater management across the state
- Conserving natural and working landscapes is a critical insurance policy for future growth and potential climate impacts





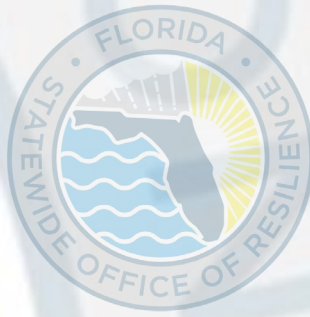
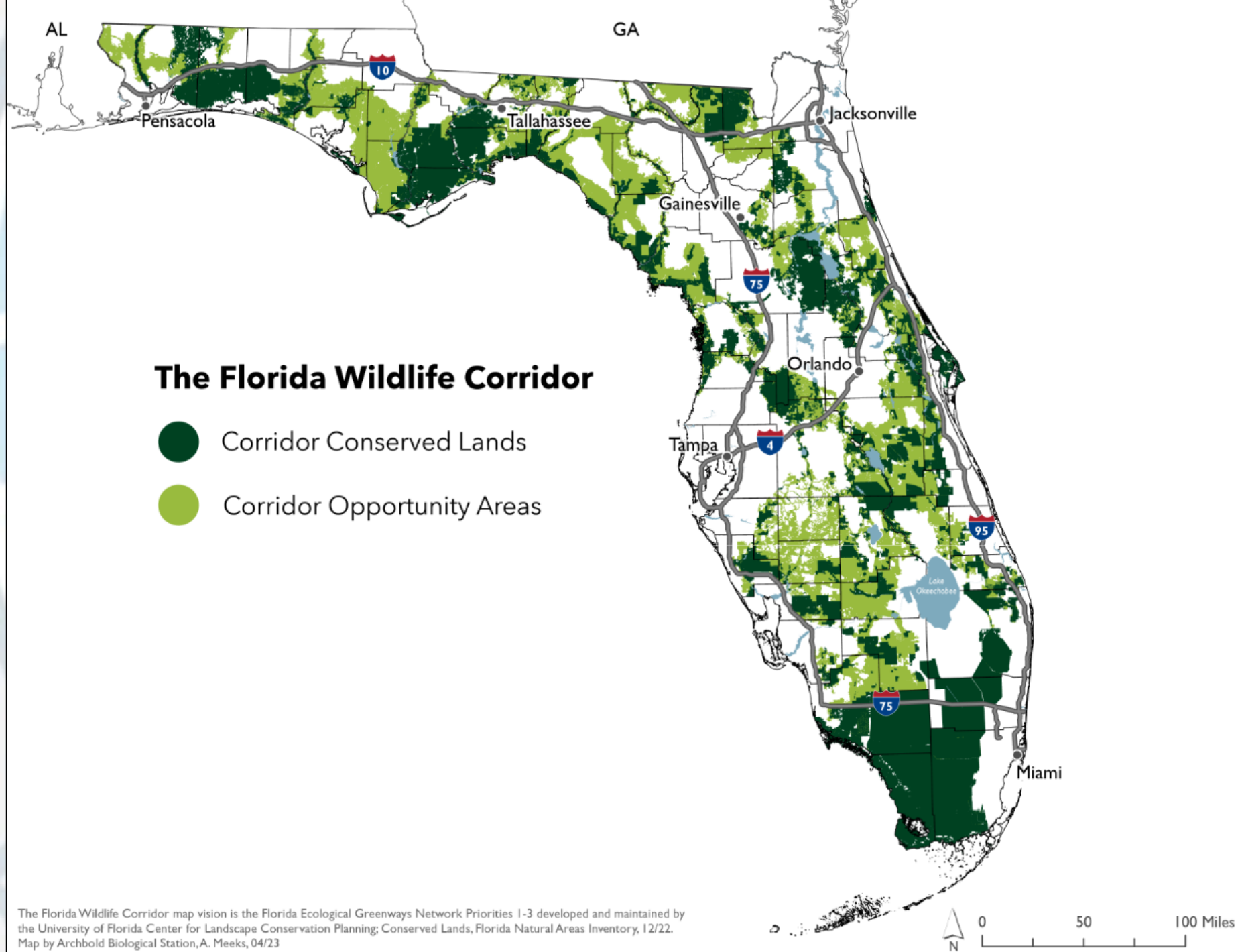














# Promoting a Resilient Recovery Considerations for Conservation



- Significant opportunities remain to preserve and improve floodplain function and stormwater management across the state
- Conserving natural and working landscapes is a critical insurance policy for future growth and potential climate impacts
- Working with landowners to better value the ecosystem services derived from their land management creates flexibility for long term resilience











# *Thank you!*

**Wesley R. Brooks, Ph.D. | Chief Resilience Officer**  
**Statewide Office of Resilience | Governor Ron DeSantis**  
**wesley.brooks@eog.myflorida.com**  
**@Florida\_CRO | @Wesley\_R\_Brooks**

