



UNIVERSITY OF
SOUTH FLORIDA
College of MARINE SCIENCE

Resiliency in 2024 and Beyond

TOM FRAZER - tfrazer@usf.edu

WESLEY R. BROOKS, Ph.D. - wesley.brooks@eog.myflorida.com

FLORIDA STORMWATER ASSOCIATION
ANNUAL CONFERENCE – 12 JUNE 2024



Elevating the Foundations of a Resilient Florida



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!

Fernandina Beach, Nassau County



Elevating the Foundations of a Resilient Florida



—2019—

- Governor DeSantis issues EO 19-12
- Governor DeSantis creates the Chief Resilience Officer position within the Executive Office of the Governor

Elevating the Foundations of a Resilient Florida



—2021—

- SB 1954 ‘Always Ready’ bill is signed into law, establishing the first elements of the Resilient Florida framework:
 - ✓ DEP Resilient Florida programs (*F.S. 380.093*)
 - ✓ Florida Flood Hub for Applied Research & Innovation (*F.S. 380.0933*)
 - ✓ Resilient Florida Trust Fund (*F.S. 380.095*)



RESILIENT FLORIDA FRAMEWORK

PLANNING GRANTS

To assist local governments with Vulnerability Assessments, Peril of Flood Comprehensive Plan Amendments

STATEWIDE FLOODING AND SEA LEVEL RISE RESILIENCE PLAN

To assist local governments and eligible entities in implementing projects that address flooding and sea level rise

STATEWIDE DATA SET AND ASSESSMENT

Collection of local vulnerability assessments and data to assist in creating a Statewide Flooding and Sea Level Rise Assessment

REGIONAL RESILIENCE ENTITIES

Technical Support, develop project applications for members and multijurisdictional collaboration



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FLORIDA

FloodHub

FOR APPLIED RESEARCH AND INNOVATION

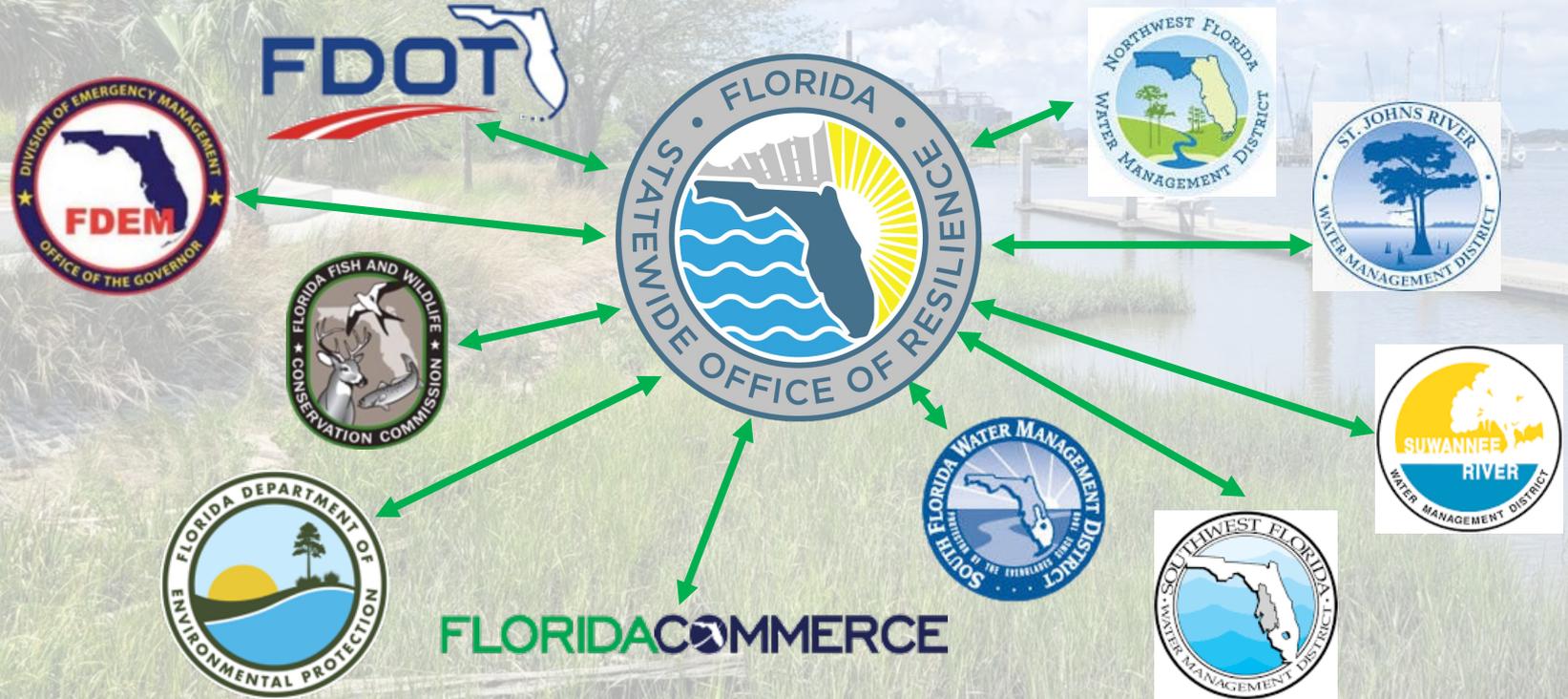
Elevating the Foundations of a Resilient Florida



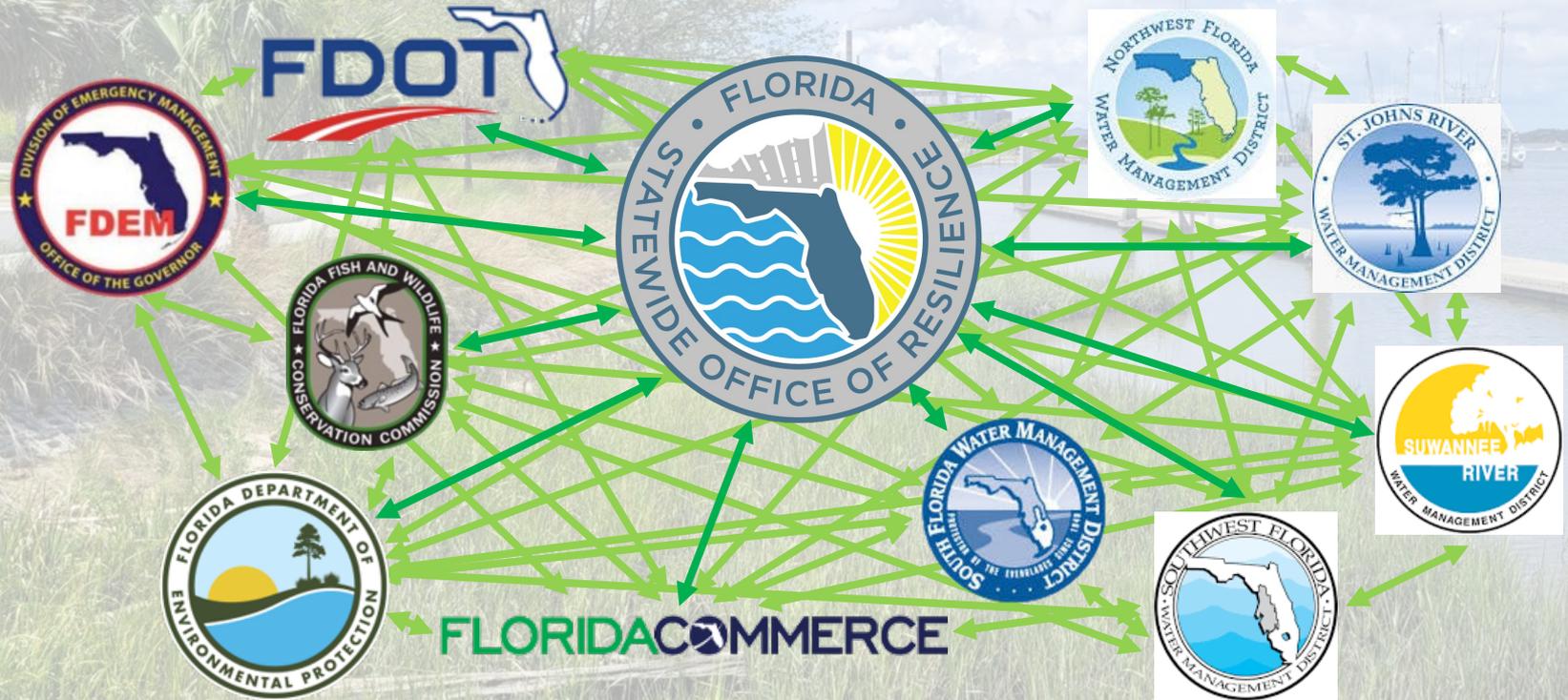
—2022—

- Statewide Office of Resilience and CRO codified (*F.S. 14.2031*)
- FDOT Resilience Action Plan (*F.S. 339.157*)

The Statewide Office of Resilience leads Interagency Coordination on flood resilience and mitigation efforts



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The Statewide Office of Resilience Supports Local Communities



- Meet communities *where they are* through Regional Resilience Tours
- Assist and accelerate DEP implementation of the Resilient Florida framework
- Advance ongoing state ecosystem restoration efforts / lower barriers to use of nature-based features and natural infrastructure
- Facilitate partnerships to capitalize on strategic collaborations and funding opportunities



FDOT Resilience Planning



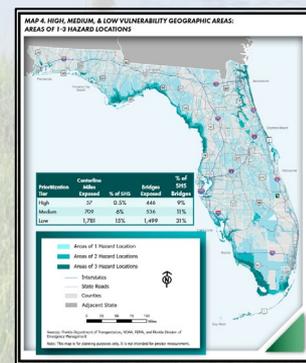
RESILIENCE ACTION PLAN

STATE HIGHWAY SYSTEM

FDOT

HURRICANE EVACUATION ROUTES

JUNE 2023



Elevating the Foundations of a Resilient Florida



—2023—

- Governor DeSantis issues EO 23-06:
 - ✓ Hurricane Recovery & Beach Nourishment
 - ✓ Statewide Resilience Plan
 - ✓ Local Vulnerability Assessment
 - ✓ Florida's Coral Reef Restoration & Recovery Initiative
 - ✓ FDOT Resilience & Water Quality Planning Coordination
- Public Financing of Construction Projects Within Areas At Risk Due to Sea Level Rise linked to DEP Resilient Florida standards (*F.S. 380.0937*)





Resilient Florida Statewide Investments to Date

14 Regional Resilience Entity Awards
- \$3,384,546

234 Planning Grant Awards
- \$48,731,096

331 Implementation Grant Awards
- \$1,233,652,743
+ Match committed
- \$1,152,228,073



STATEWIDE RESILIENCE PLAN INVESTMENTS

\$2,437,996,458



Implementation Grants

Grant Fiscal Year

- 2023 - 2024
- 2022 - 2023
- 2021 - 2022

Florida's Coral Reef Restoration & Recovery Initiative



The FCR₃ 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.

Elevating the Foundations of a Resilient Florida



—2024—

- Refinements to Resilient Florida programs (HB 1557)
- Seminole Gaming Compact revenue sharing (SB 1638)
 - ✓ DEP, DACS, & FWC land conservation & management programs
 - ✓ DEP Statewide Resilience Plan
- Flood Disclosure (HB 1049)
- My Safe Florida Home program
 - ✓ Refinements & Funding (CS/SB 7028)
 - ✓ Condominium Pilot Program (HB 1029)

Elevating the Foundations of a Resilient Florida



—2025—

- *Legislative review and reauthorization of the Resilient Florida Trust Fund (expires 7/1/2025)*
- ???

resilient | FLORIDA

Wesley R. Brooks, Ph.D. | Chief Resilience Officer
Statewide Office of Resilience | Governor Ron



wesley.brooks@eog.myflorida.com
[@Florida_CRO](https://www.instagram.com/Florida_CRO) | [@Wesley_R_Brooks](https://www.instagram.com/Wesley_R_Brooks)





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Florida Flood Hub

OVERVIEW

Represents a first in Florida

Established by the State at the University of South Florida's College of Marine Science

Focus on some of the state's most pressing environmental challenges

Improve flood forecasting and inform science-based policy, planning, and management

Bridge gaps among scientists, policymakers, practitioners, and the public to help communities mitigate and adapt to flooding

Inform resilience — the ability of communities to prepare for, withstand, and rebound from floods and other natural hazards



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Scientific and Technical Workgroups

WORKGROUPS ARE CENTRAL TO THE SUCCESS OF THE FLORIDA FLOOD HUB



Sea Level Rise Workgroup



Rainfall Workgroup



Comprehensive Modeling
Workgroup

Sea Level Rise Workgroup

INITIAL PRODUCTS

Use data underpinning the Federal Task Force report released in 2022

Focus on sea level rise as it affects Florida

Predict changes in sea level from a 2000 baseline

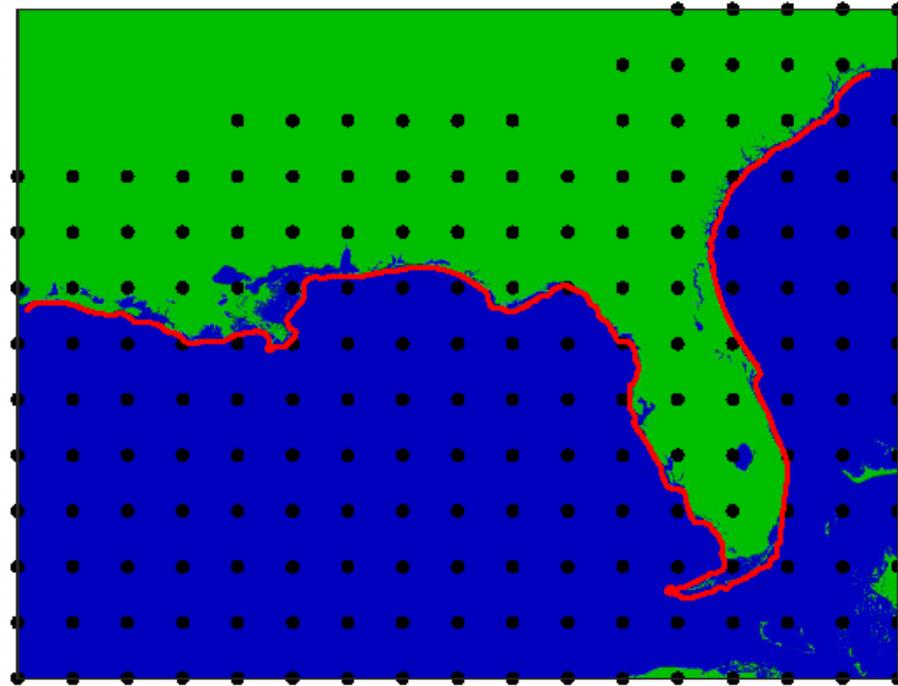
Focus on five sea level rise scenarios and three time horizons

Assess risk = Magnitude of impact × Likelihood of impact

Document increases in sea level for time horizons (**magnitude for risk**)

Incorporate five likely increases in mean global surface air temperatures

Calculate the likelihood of exceeding increases (**likelihood for risk**)



Sea Level Rise Scenarios for Florida

SEA LEVEL RISE WORKGROUP INITIAL PRODUCTS: **MAGNITUDE FOR RISK**

Table 1: Sea level change relative to 2000 for Florida across four time horizons

Global mean sea level rise scenario	Time horizon			
	2000 – 2020	2000 – 2040	2000 – 2050	2000 – 2070
	-----mm / inches-----			
Low	91 / 3.6	198 / 7.8	251 / 9.9	336 / 13.2
Intermediate low	100 / 3.9	227 / 8.9	293 / 11.5	428 / 16.9
Intermediate	103 / 4.1	245 / 9.6	333 / 13.1	554 / 21.8
Intermediate high	104 / 4.1	272 / 10.7	399 / 15.7	771 / 30.4
High	104 / 4.1	298 / 11.7	459 / 18.1	979 / 38.5



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Exceedance Probabilities

SEA LEVEL RISE WORKGROUP INITIAL PRODUCTS: **LIKELIHOOD FOR RISK**

Table 2: Exceedance probabilities for sea level rise scenarios projected to 2100

Global mean sea level rise scenario	Predicted increase in global mean surface air temperature				
	1.5°C	2.0°C	3.0°C	4.0°C	5.0°C
Low	92%	98%	>99%	>99%	>99%
Intermediate low	37%	50%	82%	97%	>99%
Intermediate	<1%	2%	5%	10%	23%
Intermediate high	<1%	<1%	<1%	1%	2%
High	<1%	<1%	<1%	<1%	<1%

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Sea Level Rise Scenarios for Florida

POTENTIAL APPLICATION: COMBINE LIKELY RISK WITH PLANNING HORIZON TO INFORM RESILIENT APPROACHES

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Examples:

- Transportation (roads and bridges)
- Energy systems (replacement and upgrades)
- Stormwater systems (improved design)
- Shoreline protection (green and gray)
- Other critical assets

Next steps

SEA LEVEL RISE WORKGROUP

- Link exceedance probabilities to specific emission pathways and time horizons
- Look at the frequency of occurrence of high tide flooding and other weather related events
- Do a careful quality control and analyses of the regional tide gauge time series
- Explore possible contributions by regional ocean processes

Questions?

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