



# Assessing the Impacts of Hurricanes Helene and Milton on the Beaches and Dunes of SW Florida

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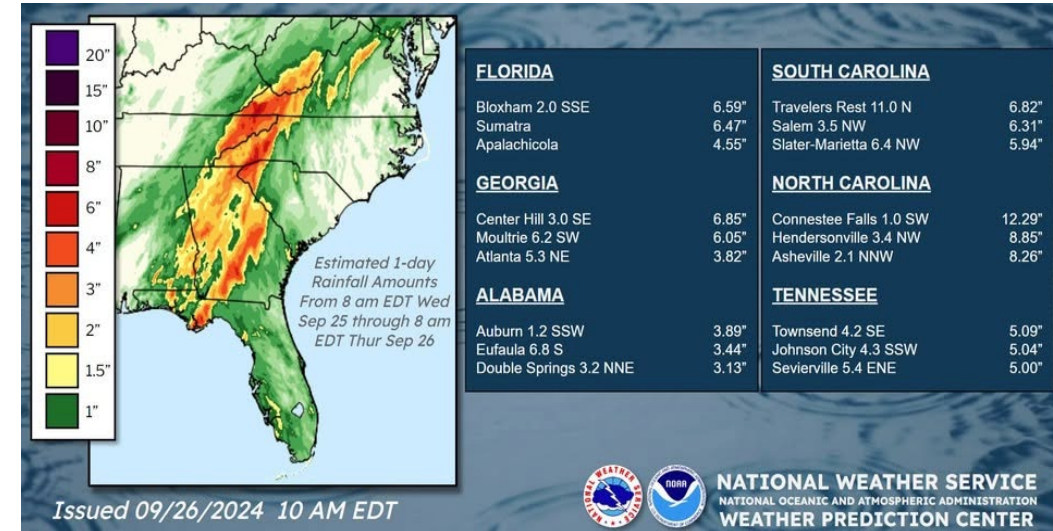
Panama City Beach, February 5, 2025



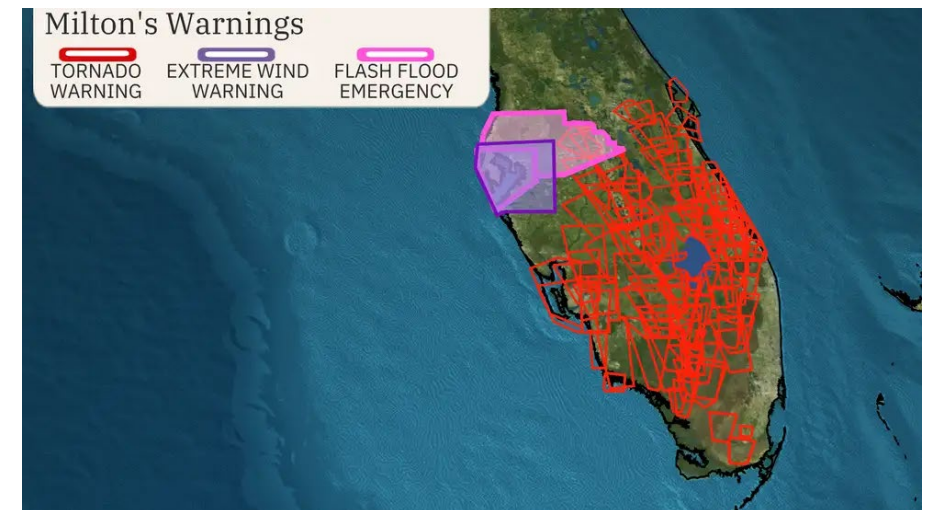


# Overview: Hurricanes Helene and Milton

- H. Helene made landfall as a strong Category 4 on Sept. 26<sup>th</sup> near Perry, FL (Taylor County)
- H. Helene had an 800-mile path of destruction from Naples, Perry, and on up to North Carolina
- H. Milton approached Florida as a Category 5 hurricane and produced 46 tornadoes
- H. Milton made landfall at Siesta Key, FL as a Category 3 on October 9<sup>th</sup>



NOAA NWS



Weather Channel



# Coastal Impact Evaluations by Land

- **FDEP damage assessment teams deployed immediately following the storms**
- **Detailed damage assessments were conducted in the in SW Florida in Pinellas, Manatee and Sarasota counties on the ground by Coastal Engineering and Geology staff, Beaches, Inlets and Ports staff and Coastal Construction Control Line staff**
- **A total of 96 miles of beaches and dunes were assessed on the ground by the damage assessment teams for the SW coastline.**







# Coastal Impact Evaluations by Land

- **FDEP damage assessment teams were deployed using 4-wheel drive vehicles, ATV/UTV's, and Tablets to assess the erosion conditions and major damages to structures**
- **GPS/RTK survey data was not collected in the early stages of the storm response by FDEP**
- **Please submit and share any survey data/ or LiDAR data collected post H. Helene and Milton with FDEP – thank you.**







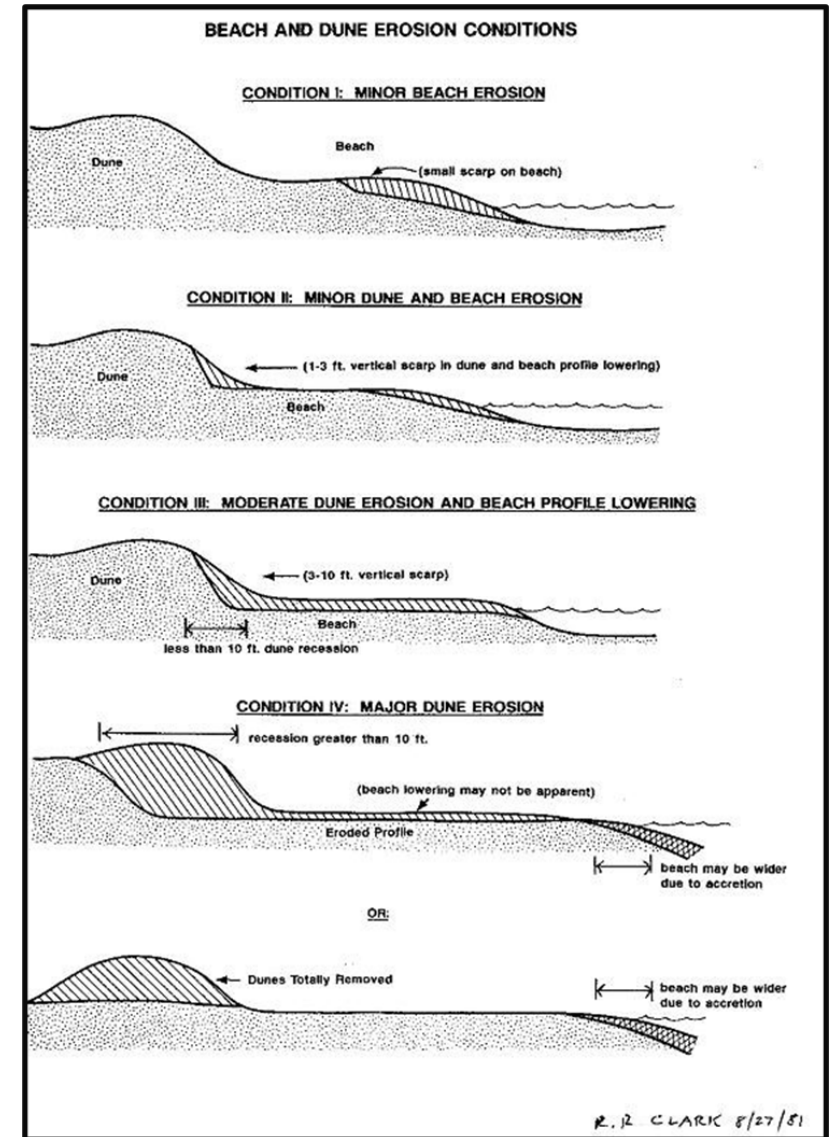
# Erosion Conditions

**Condition I : Minor Beach Erosion**

**Condition II: Minor Beach and Dune Erosion**

**Condition III: Moderate Dune Erosion and Beach Profile Lowering**

**Condition IV: Major Dune Erosion**







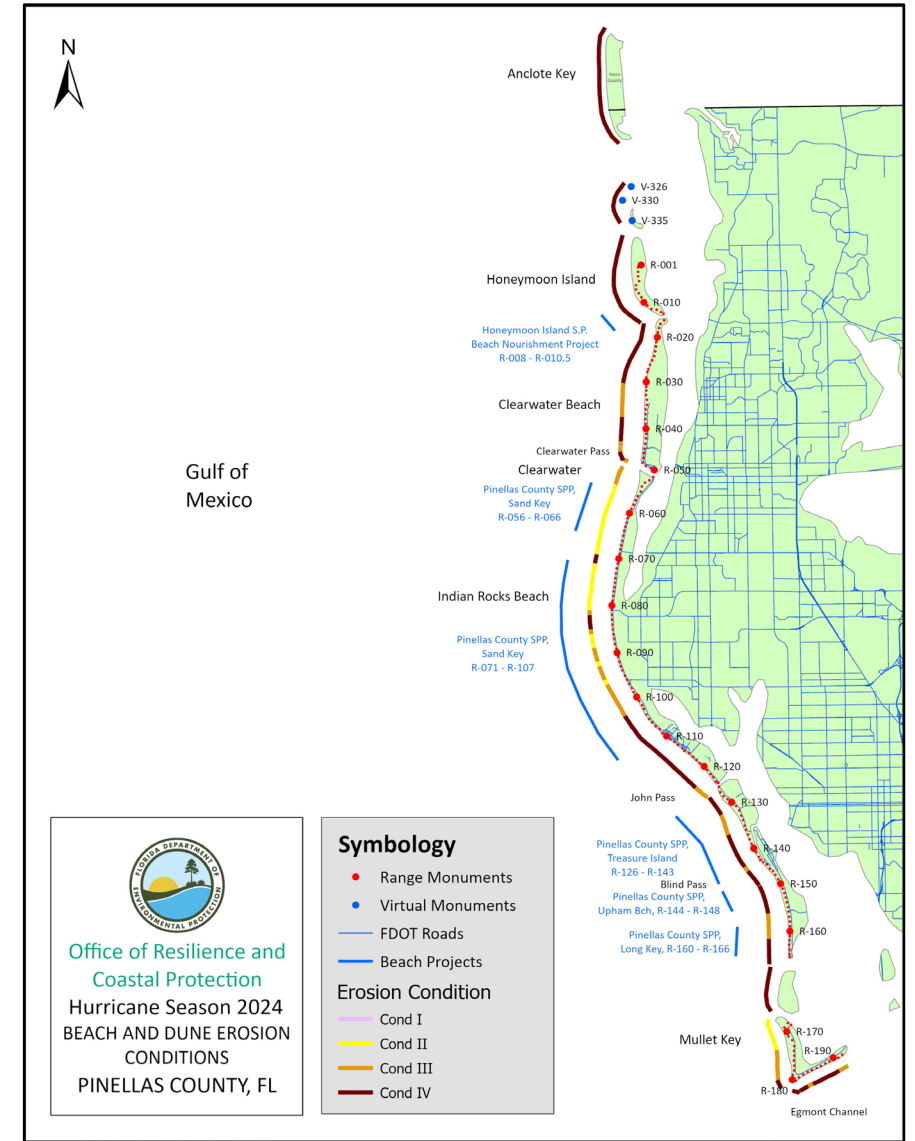
# Erosion Conditions – Pinellas County

**Condition I: Minor Beach Erosion**

**Condition II: Minor Beach and Dune Erosion**

**Condition III: Moderate Dune Erosion and Beach Profile Lowering**

**Condition IV: Major Dune Erosion**







# Erosion Conditions – Pinellas County

- **Erosion condition IV along Honeymoon Island, Clearwater Beach, and Treasure Island**
- **Beach and dune erosion condition II or III throughout the rest of the county**
- **Stormwater over wash onto Gulf Blvd and flooding from the bay side inundating buildings and homes**

Locations	Range Monuments	Erosion Condition
Honeymoon Island	R-6 to R-12	IV
Caladesi Island	R-17 to R-20	IV
Clearwater Pass North Shore	R-47 to R-49	III
Sand Key	R-56 to R-115.4	II, III, and IV
Treasure Island	R-126 to R-143	III and IV
Long Key	R-144 to R-166	III and IV
Mullet Key	R-176 to R-182	III and IV





# Coastal Impact Evaluations in SW Florida



**Clearwater Beach with erosion condition III and IV, near R-44 to R-46**





# Coastal Impact Evaluations in SW Florida



**Indian Shores with erosion condition IV, near R-83 to R-91**





# Coastal Impact Evaluations in SW Florida



**Treasure Island with erosion condition IV, near R-137 to R-139**





# Coastal Impact Evaluations in SW Florida



**Pass-A-Grille Beach with buildings destroyed and erosion condition IV, near R-166**



# Hurricanes, Indian Blessings, and Tampa Bay

**8 Storms impacting Pinellas, Hillsborough, Manatee and Sarasota Counties from the mid 1800's to 2024.**

Hurricane Name and Year	Date Range	Max Category
Unnamed 1852	Sept. 9 - 13	1
Unnamed 1859	Oct. 24 - 29	1
Unnamed 1921	Oct. 20 – Oct. 30	4
Unnamed 1946	Oct. 5 – Oct. 14	2
Unnamed 1982*	June 18	TS
Elene 1985*	Aug. 29 – Sept. 2	3
Helene 2024*	Sept. 25 – Sept. 29	4
Milton 2024*	Oct. 6 – Oct. 10	3

\* FDEP Post-Storm Report (3)





# Coastal Impact Evaluations by Air

- **After Hurricane Milton, FDEP deployed an additional damage assessment team to fly from Three Rooker Bar (Pinellas County) to Marco Island (Collier County) by helicopter collecting aerial videography with Camera Copters and Active Camera Systems**
- **Videography was collected on October 11<sup>th</sup> and 12<sup>th</sup>**
- **A total of 215 miles were assessed by Camera Copters in SW Florida**





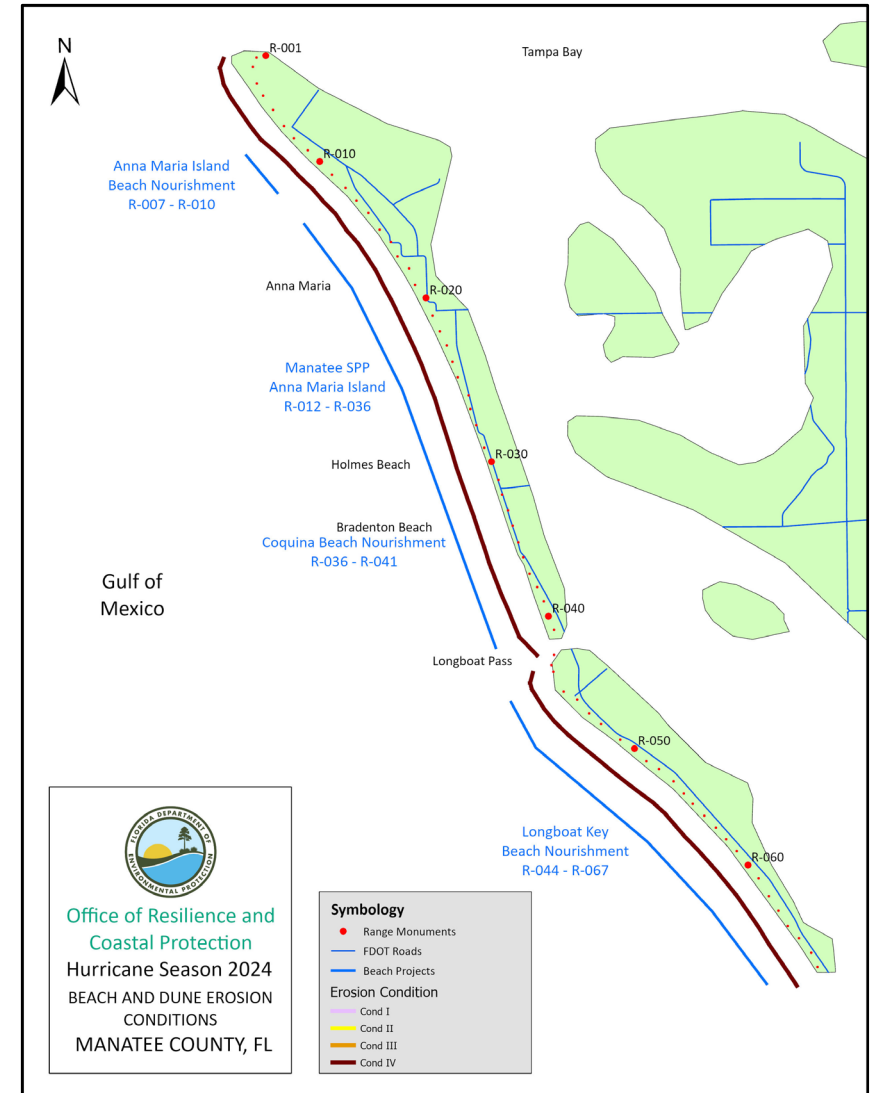
# Erosion Conditions – Manatee County

**Condition I: Minor Beach Erosion**

**Condition II: Minor Beach and Dune Erosion**

**Condition III: Moderate Dune Erosion and Beach Profile Lowering**

**Condition IV: Major Dune Erosion**







# Coastal Impact Evaluations by Air



**Hurricane Milton's caused major damages to Anna Maria Island City Pier walking platform (R-007), video photo by Camera Copters and Active Camera Systems**



# Coastal Impact Evaluations by Land & Air



**H. Helene's damages to the Rod & Reel Pier on the left and H. Milton's damages on the right (R-5), video photo by Camera Copters and Active Camera Systems**





# Coastal Impact Evaluations by Land & Air



**H. Helene's damages to a home on the left and H. Milton's damages on the right to and an additional wind damage to a home on pilings (R-35), video photo by Camera Copters and Active Camera Systems**





# Coastal Impact Evaluations by Land



**Hurricane Helene flooded all of Anna Maria Island with 3-4 ft of storm surge**





# Coastal Impact Evaluations by Land

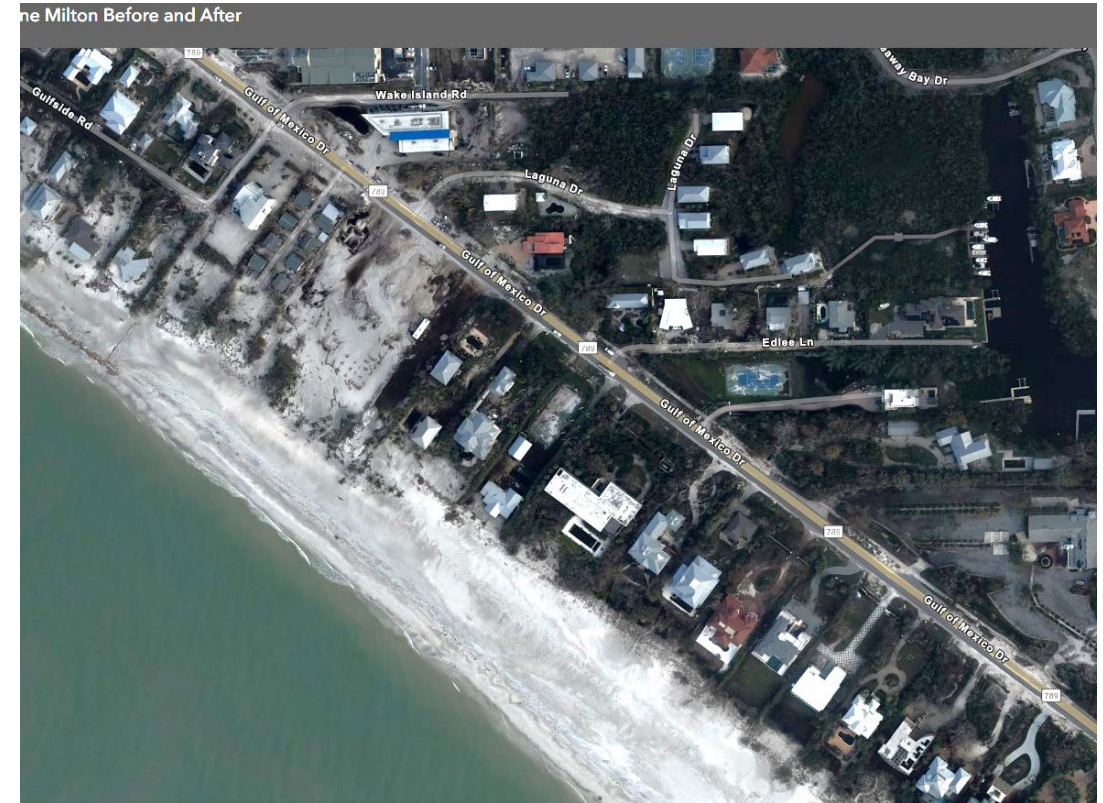
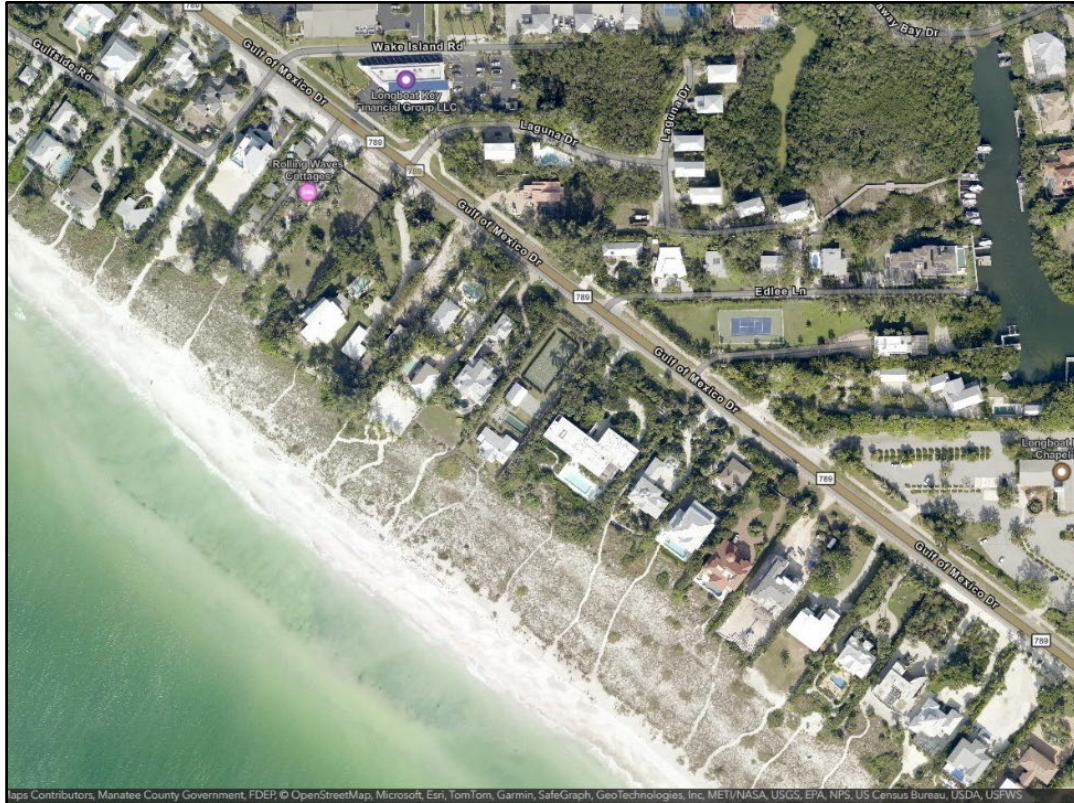


**Rain, rain, rain, and more rain while conducting damage assessments on Anna Maria Island....!**





# Coastal Impact Evaluations by NOAA Aerials



**Before and after aerial imagery of Hurricane Milton with erosion condition IV at R-52 on Longboat Key, with 40% to 60% of sand lost to the 2024 hurricane season. Aerial imagery by NOAA and used within the ESRI slide ruler application.**





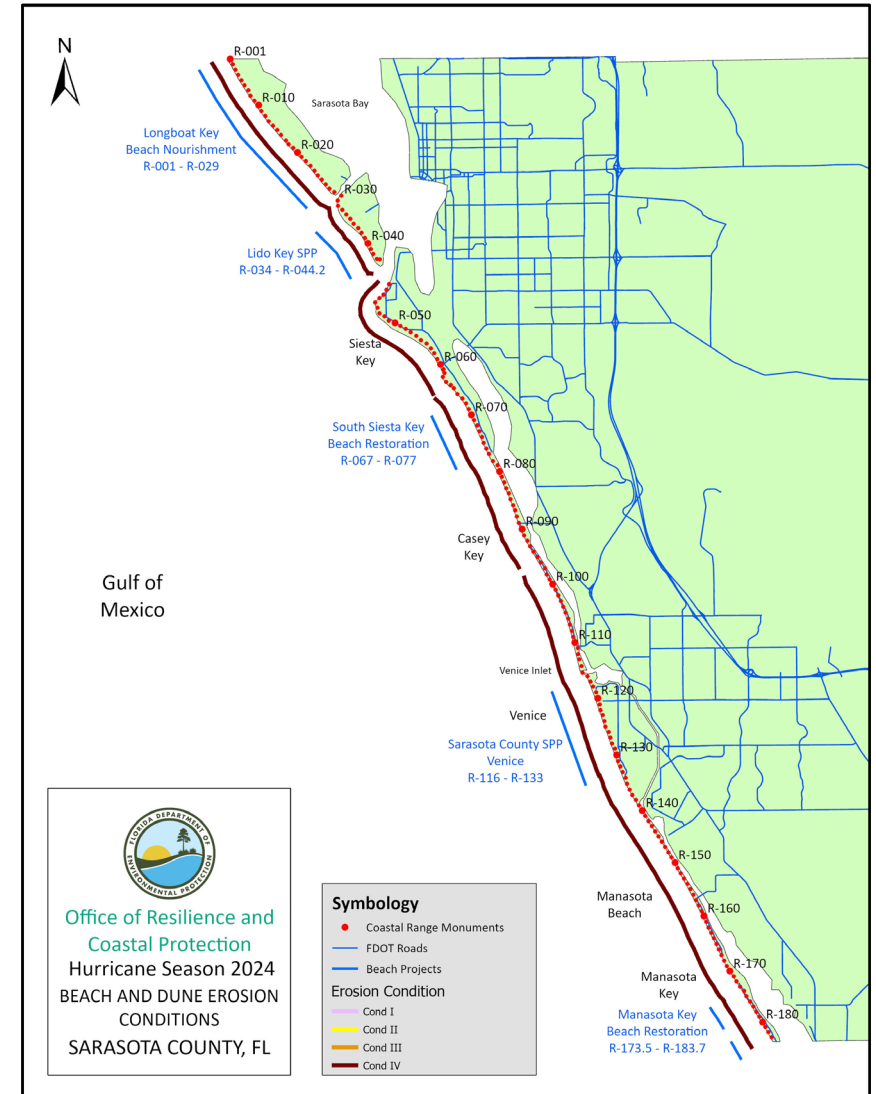
# Erosion Conditions – Sarasota County

**Condition I: Minor Beach Erosion**

**Condition II: Minor Beach and Dune Erosion**

**Condition III: Moderate Dune Erosion and Beach Profile Lowering**

**Condition IV: Major Dune Erosion**





# Coastal Impact Evaluations in SW Florida



**St. Armands Circle on the left and Lido Key on the right after H. Helene, near R-40**





# Coastal Impact Evaluations in SW Florida



**Point of Rocks after H. Milton showing erosion and high-water marks near 8 to 9 ft., near R-61**



# Coastal Impact Evaluations in SW Florida



**Breach at Midnight Pass after H. Milton and has not opened since 1983, near R-78**





# Coastal Impact Evaluations in SW Florida



**Casey Key with erosion condition IV, with a Mercedes-Benz convertible buried in sand, near R-67**





# Coastal Impact Evaluations in SW Florida



**Casey Key with erosion condition IV, with a Jaguar buried in sand near R-70 and major first floor damage at home, near R-95.**





# Coastal Impact Evaluations in SW Florida



**Venice Inlet jetties and Humphris Park had major damages, both eateries on each side of inlet were destroyed, R-115**





# Coastal Impact Evaluations in SW Florida



**Venice Beach with beach erosion condition IV, a mailbox with 4 ft. of sand surge around it (R-130) and 4 ft. of sand over wash near R-126**





# Coastal Impact Evaluations in SW Florida



**Manasota Key with two homes destroyed after H. Helene near R-171 and R-172**





# Coastal Impact Evaluations in SW Florida



**Manasota Key breach at Stump Pass State Park after H. Milton, near R-17 in Charlotte County**





# Coastal Impact Evaluations in SW Florida



**Gasparilla Island flooding after H. Helene, near R-18 in Lee County. Photos courtesy of Gasparilla Island residents.**





# Coastal Impact Evaluations in SW Florida

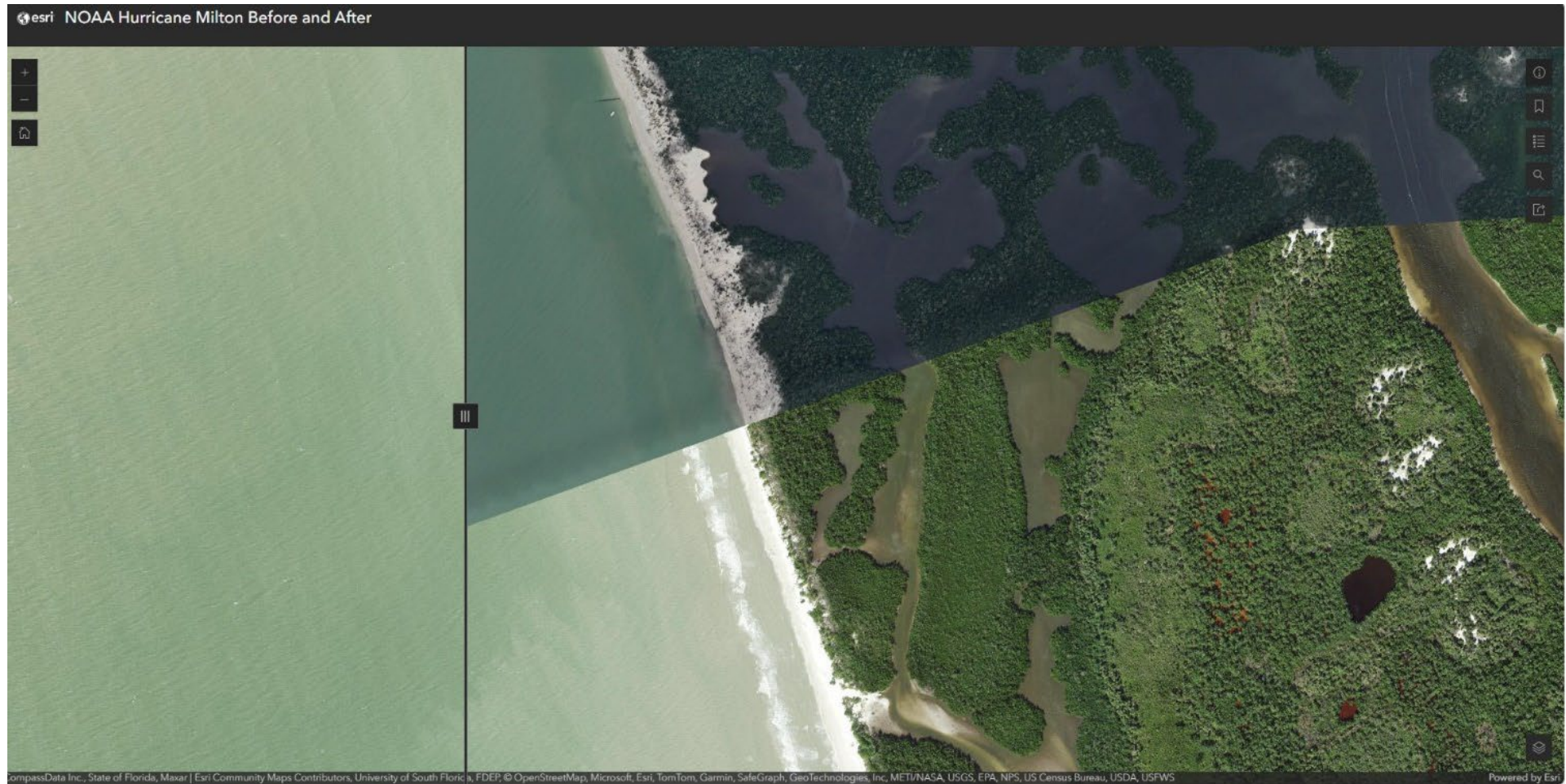


**Sand surge and beach erosion at Park Shore/Naples area, near R-50**





# Coastal Impact Evaluations in SW Florida



**Sand surge and beach erosion at Keewaydin Island after H. Milton, near R-96**





# Major Structural Damages

Hurricane Helene – Major Structural Damages				
County	# Single-Family Dwellings Damaged	# Multifamily Dwellings Damaged	# Other Major Structures Damaged	Total # Damaged
Pinellas	61	33	14	108
Manatee	46	0	9	55
Sarasota	57	3	10	70
<b>TOTAL</b>	<b>164</b>	<b>36</b>	<b>33</b>	<b>233</b>
Hurricane Milton – Major Structural Damages				
County	# Single-Family Dwellings Damaged	# Multifamily Dwellings Damaged	# Other Major Structures Damaged	Total # Damaged
Pinellas	0	0	0	0
Manatee	11	30	4	45
Sarasota	86	32	38	156
Charlotte	88	8	15	111
Lee	6	1	0	7
Collier	1	0	0	1
<b>TOTAL</b>	<b>192</b>	<b>71</b>	<b>57</b>	<b>320</b>
<b>2024 TOTAL (2 STORMS)</b>	<b>356</b>	<b>107</b>	<b>90</b>	<b>553</b>





# Hurricanes Helene and Milton Impact Report

- **Hurricanes Helene and Milton Post-Storm Impact Report and the Recovery Plan will be available on the department's web page at the following link below:**
- **The Final Report will be posted in February or March 2025**
- **A link to the aerial videography is in the report**

**<https://floridadep.gov/rcp/coastal-engineering-geology/content/coastal-engineering-geology-group-technical-reports#storms>**

*2024 Hurricane Season*  
*Florida's Southwest Gulf Coast*  
*Hurricane Helene & Hurricane Milton Post-Storm Beach Conditions and Coastal Impact*  
*Report*  
Office of Resilience and Coastal Protection  
Florida Department of Environmental Protection  
February 2025







# Contact Information

**THANK YOU**

09/29/2024

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