



HURRICANES DEBBY & HELENE AND THE FLORIDA BIG BEND COAST

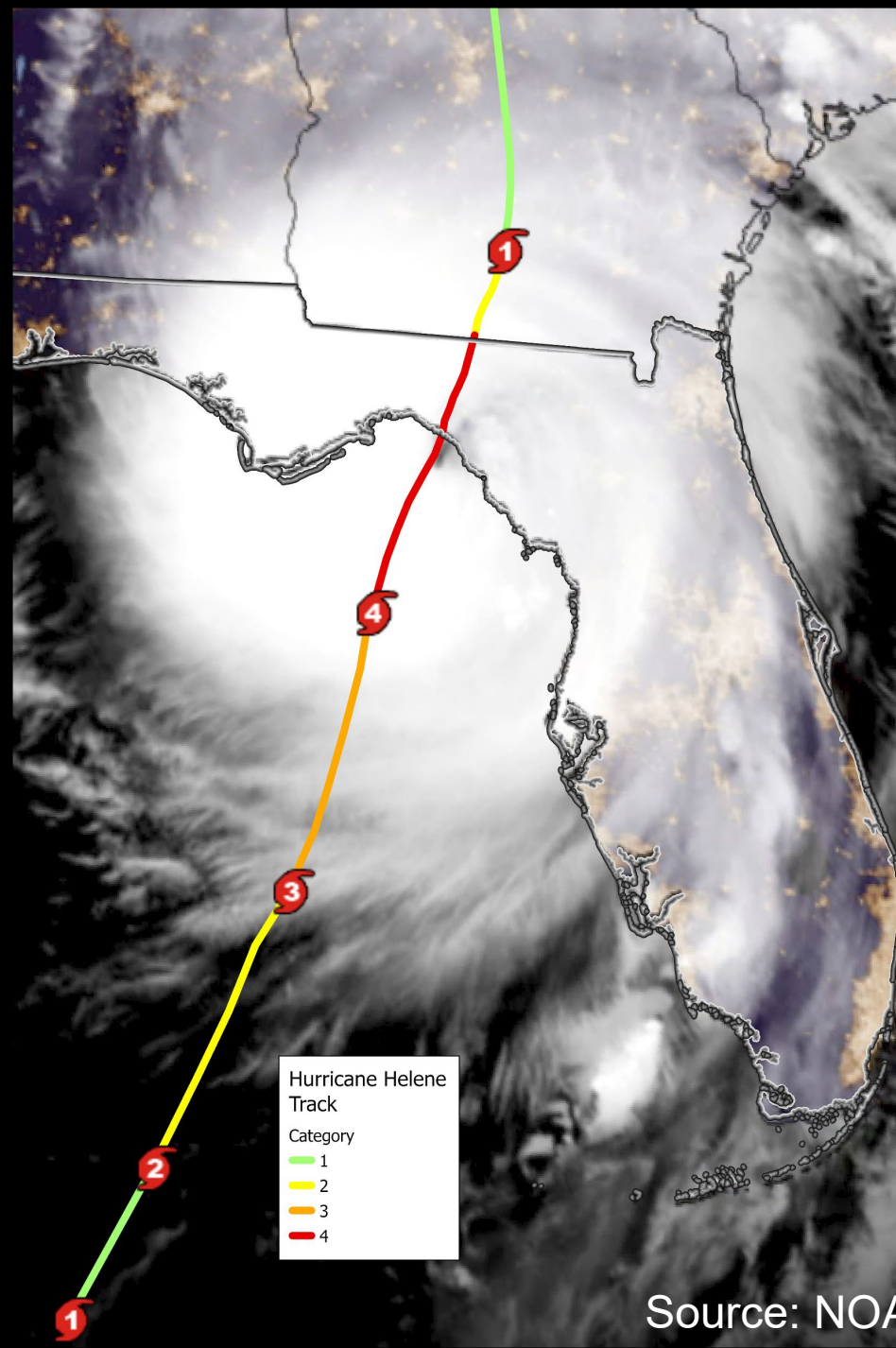
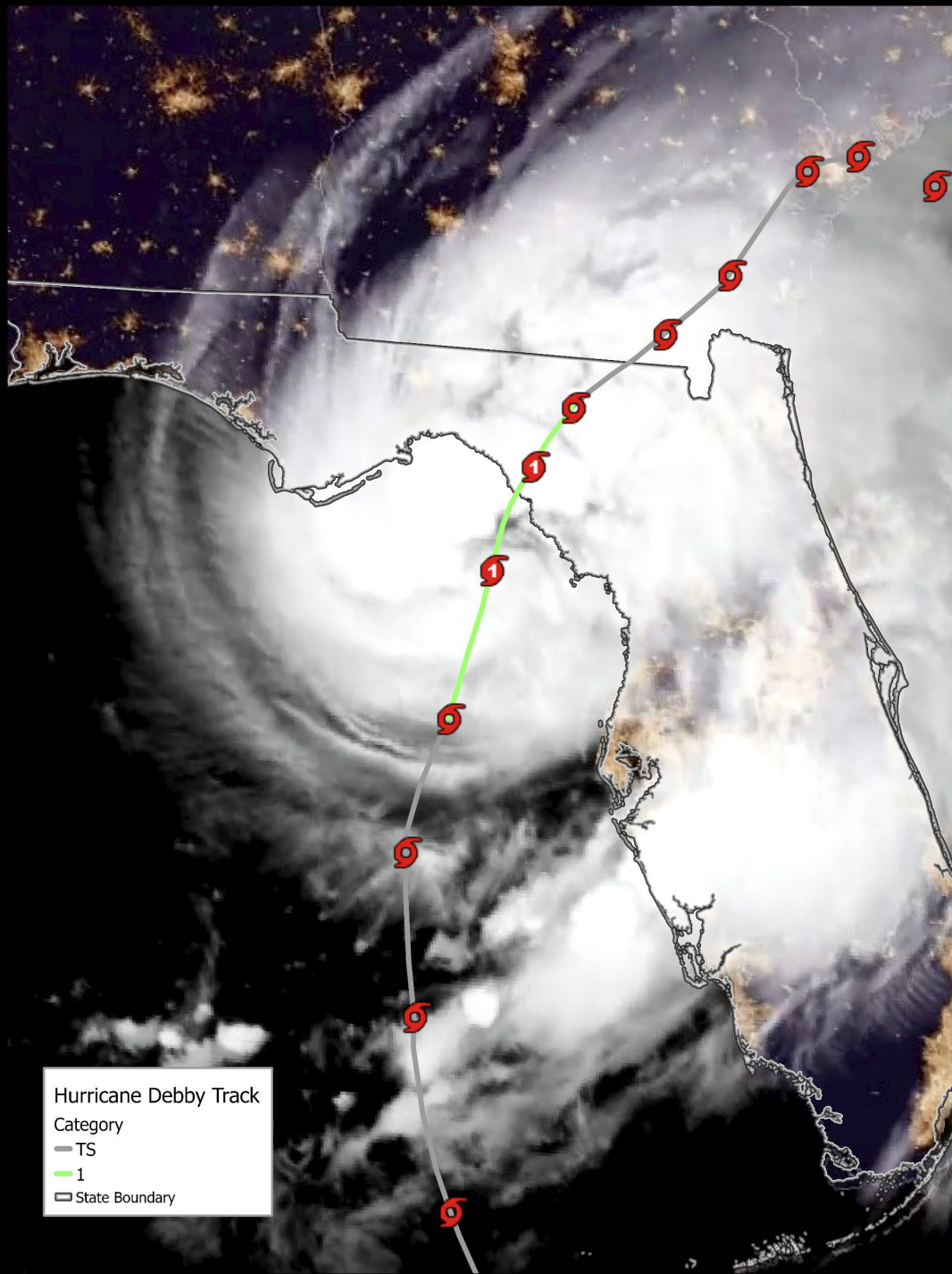


Ralph Clark & Sarah Bodin

Office Of Resilience & Coastal Protection

Florida Department Of Environmental Protection

Panama City Beach, February 5, 2025



Source: NOAA

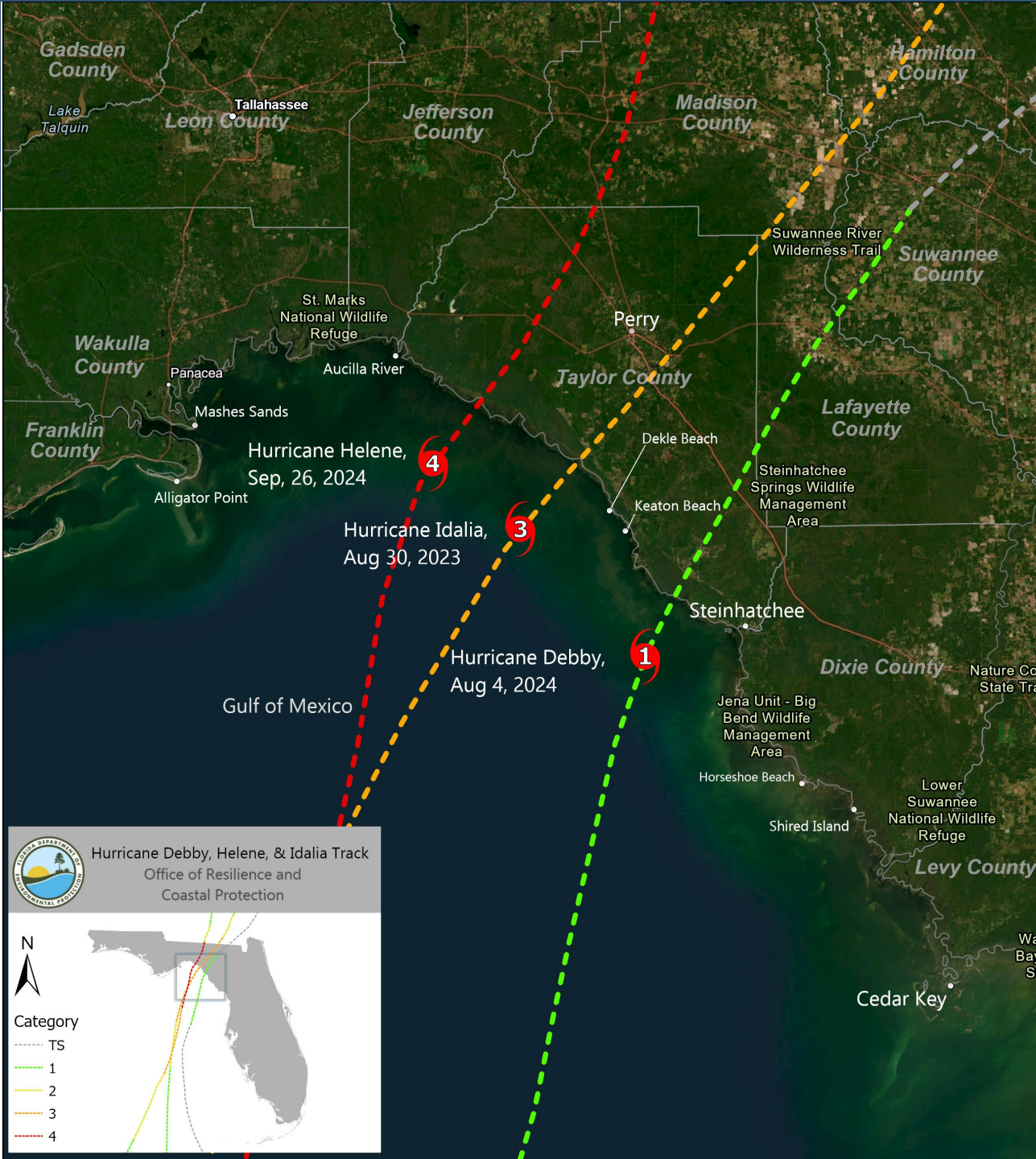


LANDFALL – TAYLOR COUNTY

August 5th - Debby (CAT. 1)
September 26th - Helene (CAT. 4)

	Debby	Helene
Coastal Storm Tide Ranges	3-6 ft	10-15 ft
Cedar Key Tide Gauge	+6 ft	+10.84 ft
Apalachicola Tide Gauge	N/A	+5.18 ft

- Greatest impact extended east of the eye from Dekle Beach south through the Cedar Keys**

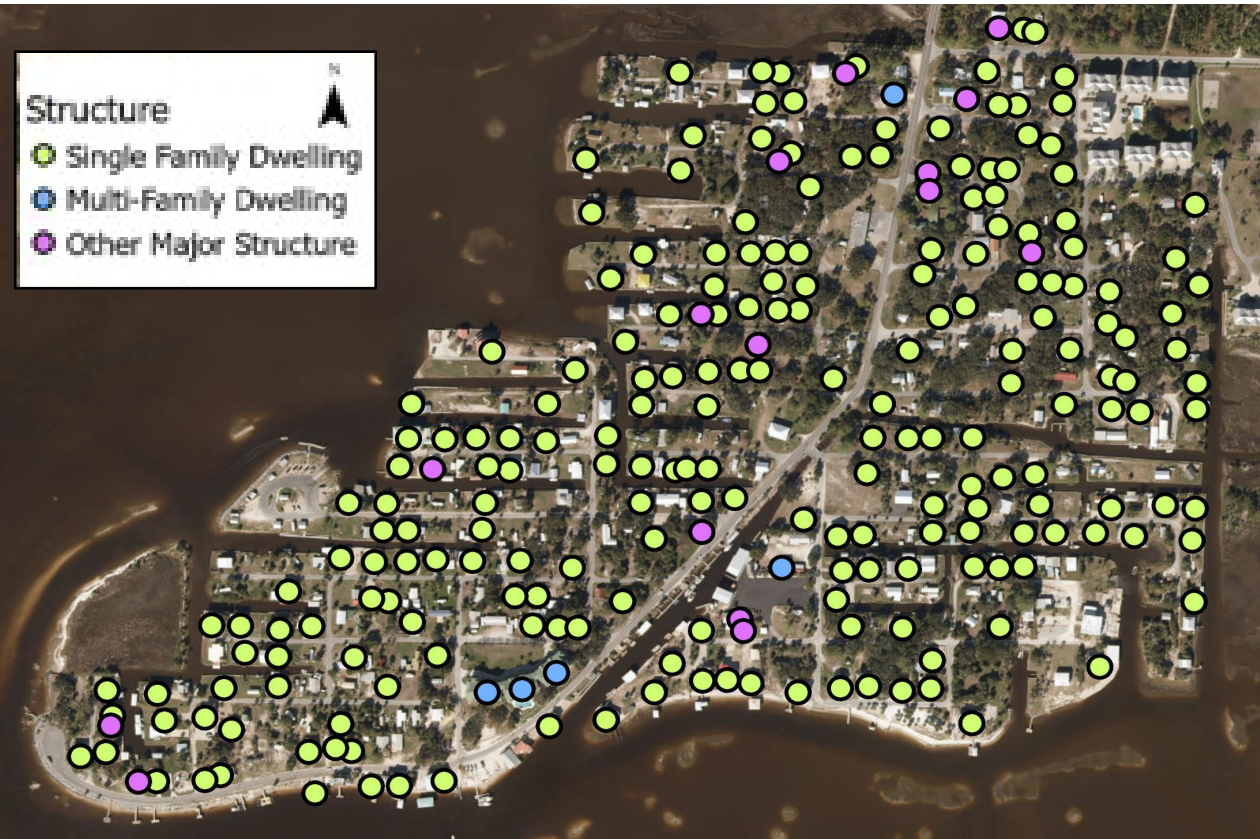




COASTAL DAMAGE ASSESSMENT – HORSESHOE BEACH



Post Debby Damage



Post Helene Damage



Hurricane Debby – Major Structural Damages

County	# Single-Family Dwellings Damaged	# Multifamily Dwellings ¹ Damaged	# Other Major Structures ² Damaged	Total # Damaged ³
Taylor	0	0	0	0
Dixie	10	2	1	13
Levy	1	3	1	5
TOTAL	11	5	2	18

Hurricane Helene – Major Structural Damages

County	# Single-Family Dwellings Damaged	# Multifamily Dwellings ¹ Damaged	# Other Major Structures ² Damaged	Total # Damaged ³
Taylor	265	2	96	363
Dixie	123	4	58	185
Levy	55	18	13	86
TOTAL	443	24	167	634



HISTORICAL DAMAGE PERSPECTIVE

YEAR	Hurricane	# of Major Structures
2022	Ian	4,503
2018	Michael	2,725
1995	Opal	1,129
2004	Ivan	1,000+
2024	Helene	867
2017	Irma (non-Keys)	813
2004	Jeanne	644
2004	Frances	546
2005	Dennis	448
2020	Sally	336
2024	Milton	320
2023	Idalia	306
2004	Charley	~250
1985	Kate	242
2016	Matthew	187
1985	Elena	165
2022	Nicole	158
1979	Frederic	101



TAYLOR COUNTY

- 363 major structures damaged mostly due to Helene's storm surge; 74% of these were destroyed.
- Storm tides to 15 feet.
- Only minor beach erosion.
- Wetlands showed substantial resilience.



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Hurricane Season 2024
BEACH AND DUNE EROSION
CONDITIONS
TAYLOR COUNTY, FL

Erosion Condition

- Cond I
- Cond II



CATASTROPHIC DAMAGE – DEKLE BEACH

55 major structures damaged, including 38 destroyed





CATASTROPHIC DAMAGE – KEATON BEACH

145 major structures damaged, including 109 destroyed





STORM SURGE DAMAGE – KEATON BEACH

Residences were carried into canals and onto roads.





CATASTROPHIC DAMAGE – CEDAR ISLAND

98 major structures damaged, including 71 destroyed





CATASTROPHIC DAMAGE – DARK ISLAND

22 major structures damaged, including 13 destroyed





DIXIE COUNTY

- 185 major structures damaged, including 112 destroyed.
- Horseshoe Beach had 74 Single Family Dwelling's destroyed; another 48 with major structural damage.
- Most damage due to the storm surge and waves.
- Damage a little greater than 2023's Hurricane Idalia.
- Major beach and dune erosion on Bird, Cotton and Butler Islands.
- Adjacent wetland shorelines resilient with little erosion.





SOUTHERN DIXIE COUNTY

- Storm tides between 12 to 15 feet county-wide.
- Major beach and dune erosion on Shired, Big Pine and Little Pine Islands.
- The wetland shorelines were anchored by oysters and wetland plants and experienced little, if any, shoreline retreat.



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BEACH AND DUNE EROSION
CONDITIONS
DIXIE COUNTY, FL

Erosion Condition
— Cond IV



COTTON ISLAND EROSION – PRE-STORM (LEFT); POST-STORM (RIGHT)





SHIRED ISLAND, DIXIE COUNTY (CRITICAL EROSION AREA)

Ancient shell mound at north end of island substantially destroyed.

After Debby



After Helene





HORSESHOE BEACH, DIXIE CO. – STORM TIDE INDICATORS

Debby



Helene





CATASTROPHIC DAMAGE – HORSESHOE BEACH

184 major structures damaged, including 111 destroyed





HORSESHOE BEACH – GRADE LEVEL BUILDINGS DESTROYED





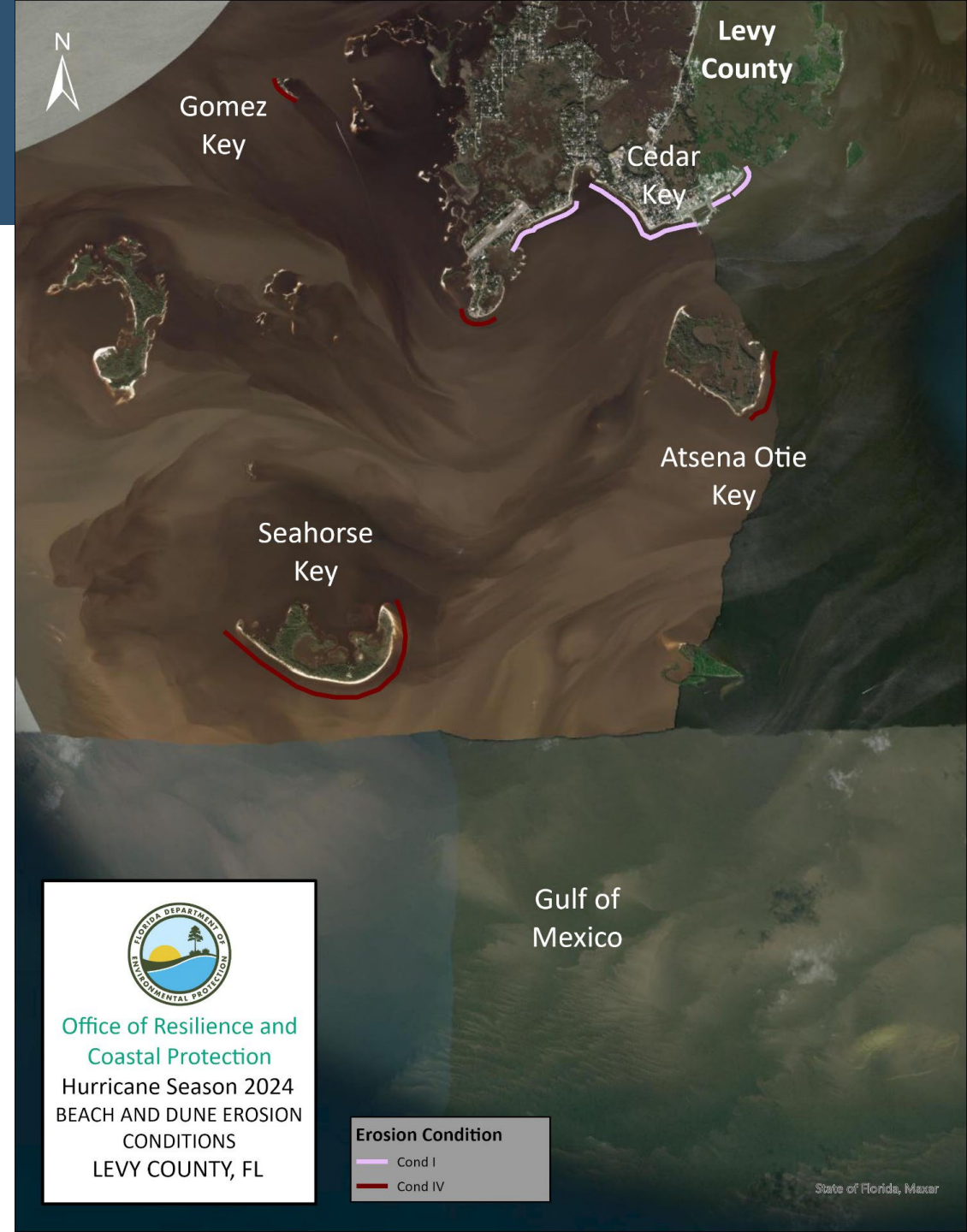
HORSESHOE BEACH: PILE-SUPPORTED STRUCTURES DESTROYED





LEVY COUNTY

- Major beach and dune erosion on Deer Island and Gomez Key north of Cedar Key
- Major beach and dune erosion on Seahorse Key and Atsena Otie Key south of Cedar Key
- Mostly minor beach erosion on Cedar Key
- Helene - Worst storm in recent history of Cedar Key
- 86 major structures damaged to wind, storm surge and waves, including 32 destroyed.



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BEACH AND DUNE EROSION
CONDITIONS
LEVY COUNTY, FL

Erosion Condition

- Cond I
- Cond IV



CEDAR KEY, LEVY COUNTY – STORM SURGE +10.84 FT

23 single-family dwellings destroyed; another 17 with major damage





CEDAR KEY – LIVING SHORELINES

G STREET



JOE RAINES BEACH





THANK YOU

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