

***Hurricane Idalia Post-Storm Beach Conditions
and Coastal Impact Report***

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

December 2023



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I. Introduction

Hurricane Idalia made landfall on August 30, 2023, at approximately 7:45 a.m. Eastern Daylight Time (EDT), along the Big Bend coast of Florida near Keaton Beach in Taylor County as a Category 3 hurricane on the Saffir-Simpson hurricane intensity scale. Idalia came ashore with maximum sustained winds of nearly 125 mph. It devastated several small Gulf-front communities in the Big Bend with strong winds and high storm tides estimated between seven and twelve feet. Idalia cut a swath of wind damage through north Florida into southern Georgia damaging residential and commercial structures as well as forests and agricultural resources.

Idalia came ashore with a storm surge and storm waves with much of the worst coastal damage occurring east of the hurricane's eye in Taylor, Dixie, and Levy Counties. Fortunately, the timing of Idalia's arrival coincided with the astronomical low tide. Had the storm made landfall about six hours earlier or later during the astronomical high tide, the peak storm surge could have been roughly three feet higher. To the south of the Big Bend, storm tides between four and five feet were measured by NOAA tide gages between Manatee and Pinellas County.

The Big Bend is sparsely populated with widely scattered small coastal communities surrounded by major wildlife refuges – St. Marks National Wildlife Refuge, Lower Suwanee National Wildlife Refuge, and Cedar Keys National Wildlife Refuge, as well as the [Big Bend Seagrasses Aquatic Preserve](#). There are a limited number of small natural sandy beaches along with a few man-made beaches in the Big Bend region, which is dominated by vegetated wetland shorelines. Observations following Hurricane Idalia noted little erosion or damage to the densely vegetated wetland shorelines, but generally major erosion to natural sandy beaches between Horseshoe Beach in Dixie County and Cedar Key in Levy County.

In the leeward side of Idalia's eye extending westward through Wakulla and Franklin Counties, the overall impact to the beaches was minor beach and dune erosion. The worst impacted areas included the southern reach of Mashas Sands in Wakulla County and Bald Point and Lighthouse Point in eastern Franklin County, both with minor beach and dune erosion (condition II – see beach erosion conditions shown in Figure 11, page 19). No major damage to any major structures was observed in Franklin or Wakulla Counties. This region appeared to have been affected by an approximately 3-foot storm tide.

South of the Big Bend region, Hurricane Idalia passed sufficiently offshore of southwest Florida (Collier through Pinellas Counties) for this region to escape the hurricane force winds and maximum storm tide conditions. However, the storm waves and elevated tides inflicted beach and dune erosion conditions,

which were greatest in Pinellas County and generally lessened extending southward from Tampa Bay. Structural damage was very limited in southwest Florida with only a few major structures being damaged.

This report documents the post-storm beach conditions and coastal impact of Hurricane Idalia. It will assist the Florida Department of Environmental Protection (Department) and local governments to identify areas where storm erosion has left upland development and infrastructure vulnerable to imminent damage from future storms, where sand berms could be placed to fortify and assist in the recovery of the beach and dunes, and where expedited permitting procedures are needed to assist homeowners in repairs and reconstruction.

The Department developed this Post-Storm Beach Conditions and Coastal Impact Report to assess the damage caused by Hurricane Idalia. This report provides a mostly qualitative assessment of storm impact and beach and dune erosion with qualitative structural damage assessments in the coastal regions of Florida fronting the Gulf of Mexico. Although extensive structural damage occurred well inland of the coast, the damage assessment in this report specifically focuses on damage within the Coastal Building Zone as defined in Section 161.54, Florida Statutes.

II. Procedures Employed for Evaluating Coastal Impacts of Hurricane Idalia

Immediately following the impacts of Hurricane Idalia, damage assessment teams were dispatched to the affected coastal areas. The damage assessment teams from the Department included: Ralph Clark, P.E., Coastal Engineer; Guy Weeks, Planning Manager; Ty Amorosano, Coastal Engineer; Nathan Bonanno, Coastal Engineer; Kristen Becker, Coastal Geologist; Sarah Lindeman, Coastal Geologist; Shane Duinkerken, Surveyor; Chad Jones, Surveyor. Office support in Tallahassee included Bud Bostick, GIS Manager, Gary Thigpen, GIS Specialist, Ted Kiper, GIS Specialist and Shamim Murshid, Coastal Engineer.

The post-storm damage assessment teams conducted detailed field inspections and assessments of the beach and dune erosion conditions and coastal structural damages within the Coastal Building Zone using criteria consistently employed by Department staff over the past 40 years. The damage assessment teams evaluated major damages to buildings including roof damage, siding damage, other structural damage and flooding damage on residential and commercial buildings, including single-family dwellings, multifamily dwellings and other major structures such as swimming pools, fishing piers, parking lots, roads, and restaurants. Damages were also assessed for rigid coastal and shore protection structures including

seawalls, revetments, groins, and jetties. The damage assessment teams logged observations into computer tablets and field books while inspecting the beach and dune erosion conditions and structures. These hurricane damage assessment teams conducted detailed damage assessments in the following counties: eastern Franklin, Wakulla, Taylor, Dixie, Levy, Pinellas, Manatee, Sarasota, and northern Charlotte. Additional data, information, and assistance was provided to the Department staff by various state park and aquatic preserve staff as well as personnel from Horseshoe Beach, Pinellas County, Manatee County, and various private coastal engineering firms. The Florida Fish and Wildlife Conservation Commission staff provided noteworthy information on the impacts to various small coastal islands dotting the Big Bend region between Horseshoe Beach and Cedar Key from their post-storm assessments of bird nesting and roosting areas.

Figure 1 reflects a segment of coast at Horseshoe Beach in Dixie County showing the Coastal Building Zone. The colored dots in **Figure 1** are the data points that were collected in the field and posted on a geographic information system (GIS) map layer. Post-storm reports have been prepared by the Department staff since 1979 and are available on the Department's website. The post-storm reports and the recovery plans are shared with coastal stakeholders and local governments, the Florida Legislature, and the Federal Emergency Management Agency (FEMA).

The summary of post-hurricane field data collected after Hurricane Idalia can be viewed in **Section IV** and in each coastal county section of this report.

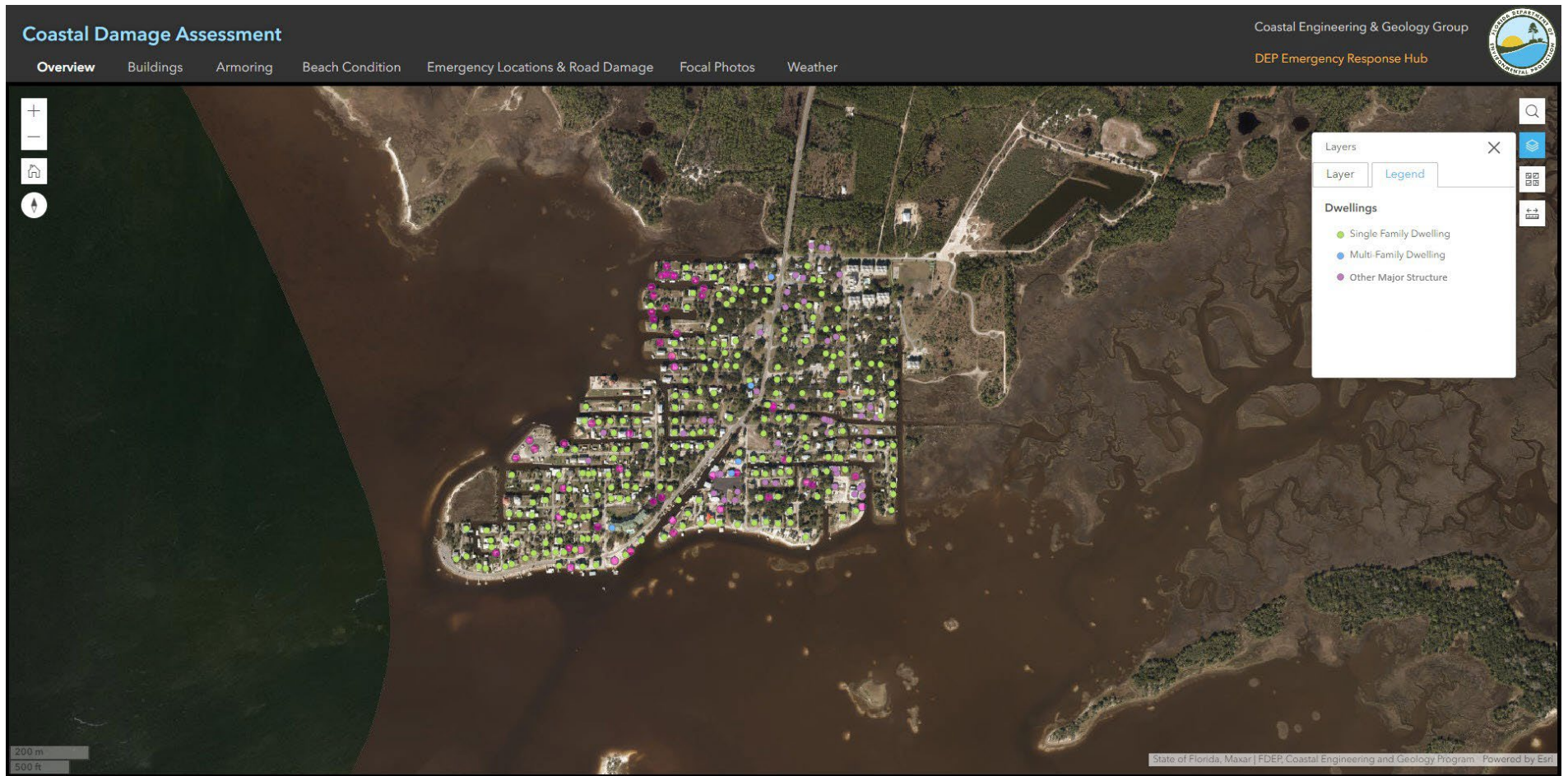


Figure 1. A snapshot of data points representing structural damages collected by DEP Damage Assessment team at Horseshoe Beach within Dixie County.

III. Hurricane Idalia: August 26 – September 2, 2023

Hurricane Idalia spawned from a tropical depression (wind speed ≤ 38 mph) that formed on Saturday, August 26 off the coast of the northeastern Yucatan Peninsula in Mexico. Meandering over the Yucatan Channel overnight, the depression strengthened to a tropical storm (wind speed 39 – 73 mph) on Sunday morning of August 27 and was named Idalia by 11:15 a.m. EDT with maximum estimated winds of 40 mph and slow movement to the east at 2 mph. By 2:00 p.m. EDT, the storm started moving northward with an estimated minimum central pressure of 996 mb (29.41 inches). The wind speed of Idalia increased overnight, and the storm had erratic movements while being nearly stationary. By early morning on Monday, August 28, the maximum sustained wind increased to nearly 65 mph and the storm had a northward motion of approximately 7 mph. By 11:00 p.m. EDT, Idalia was almost a hurricane with maximum sustained wind of 70 mph. An observation in Cabo de San Antonio in western Cuba reported a wind gust of 78 mph. A hurricane warning was issued for the Cuban province of Piñar del Rio and for Florida from the middle of Longboat Key northward to Indian Pass, including Tampa Bay.

Early Tuesday morning, August 29, at 5:00 a.m. EDT, Idalia became a hurricane over the southeastern Gulf of Mexico with 75 mph maximum sustained wind, and continued to move north at nearly 14 mph. By 11:00 a.m. EDT, the maximum sustained wind increased to near 85 mph with an expectation of rapid intensification due to warm water and favorable meteorological conditions. At 8:00 p.m. EDT, Idalia had become a Category 2 hurricane with maximum sustained winds of 105 mph and was located about 155 miles west-southwest of Tampa and 245 miles south of Tallahassee. By 9:26 p.m. EDT, a NOAA buoy offshore from St. Petersburg measured a significant wave height of 33.8 feet. Wave heights in excess of 30 feet in the Gulf of Mexico are typically associated with a major hurricane.

After midnight, by 2:00 a.m. EDT, August 30, Idalia had intensified into a Category 3 major hurricane with maximum sustained wind of 120 mph. By 5:00 a.m. EDT, Idalia continued to rapidly intensify into a Category 4 hurricane as Hurricane Hunter aircraft data indicated the maximum sustained wind had reached 130 mph. Hurricane force winds extended outward up to 25 miles from the center and tropical storm-force winds extended outward up to 175 miles from the center. At that time, Idalia was located 60 miles west of Cedar Key, and about 90 miles south of Tallahassee. **Figure 2** illustrates the track history of Hurricane Idalia overlaid on satellite

imagery.

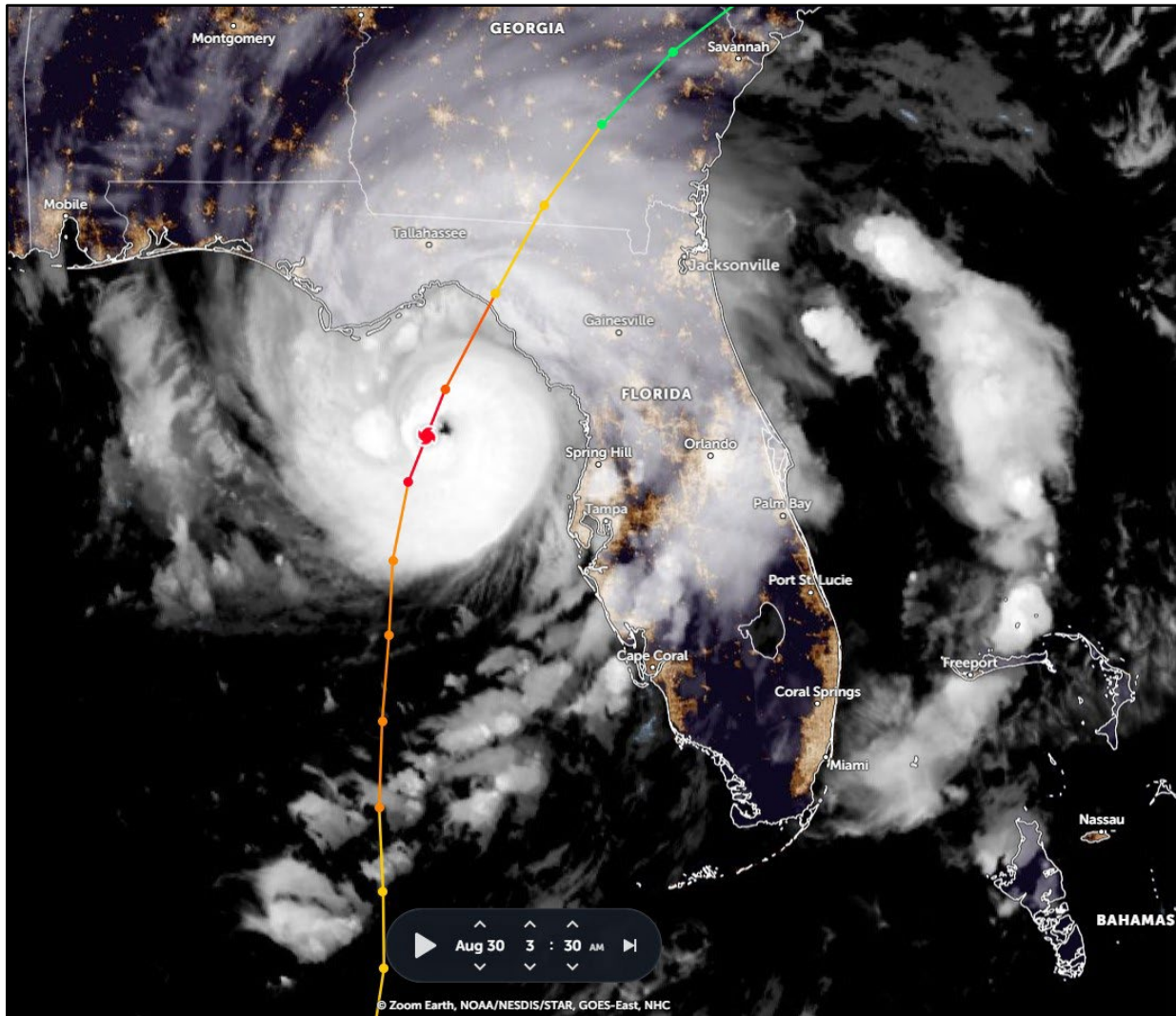


Figure 2. Hurricane Idalia track overlaid on satellite imagery (source: Zoom Earth)

The hurricane continued its north-northeasterly track across the eastern Gulf of Mexico and weakened slightly. The eye of Hurricane Idalia made landfall as Category 3 hurricane around 7:45 a.m. EDT on Wednesday, August 30 along the Big Bend coast of Florida near Keaton Beach in Taylor County with maximum sustained wind of nearly 125 mph and minimum central pressure of 949 mb. Data from a NOAA meteorological station at Keaton Beach (station KTNF1) indicated that the wind speed near the ground level was approximately 75 mph and the barometric pressure dropped to approximately 962 mb (28.4 inches of mercury). A WeatherSTEM station at Horseshoe Beach measured a peak wind gust of 81 mph. The forward speed of Idalia at landfall was nearly 18 mph towards the north-northeast. As the hurricane continued inland, the damaging hurricane force winds prevailed over northern Florida. An automated weather station at Perry

Airport reported a sustained wind of 62 mph with a gust to 85 mph. A Florida Coastal Monitoring Program (University of Florida) mobile tower located near Perry reported a wind gust of 81 mph. Further inland, an automated site at the Madison High School in Madison measured a wind gust of 67 mph. Idalia continued northward across coastal Georgia and the Carolinas before dissipating in the Atlantic Ocean.

Figure 3 illustrates the landfalling track of Hurricane Idalia on the Big Bend coast of Florida and its proximity to the worst impacted area of Taylor, Dixie, and Levy Counties, which were to the right of the hurricane's eye. The various coastal communities and island beaches discussed in more detail in Section V (Detailed Damage Assessments by County) are included in this graphic.

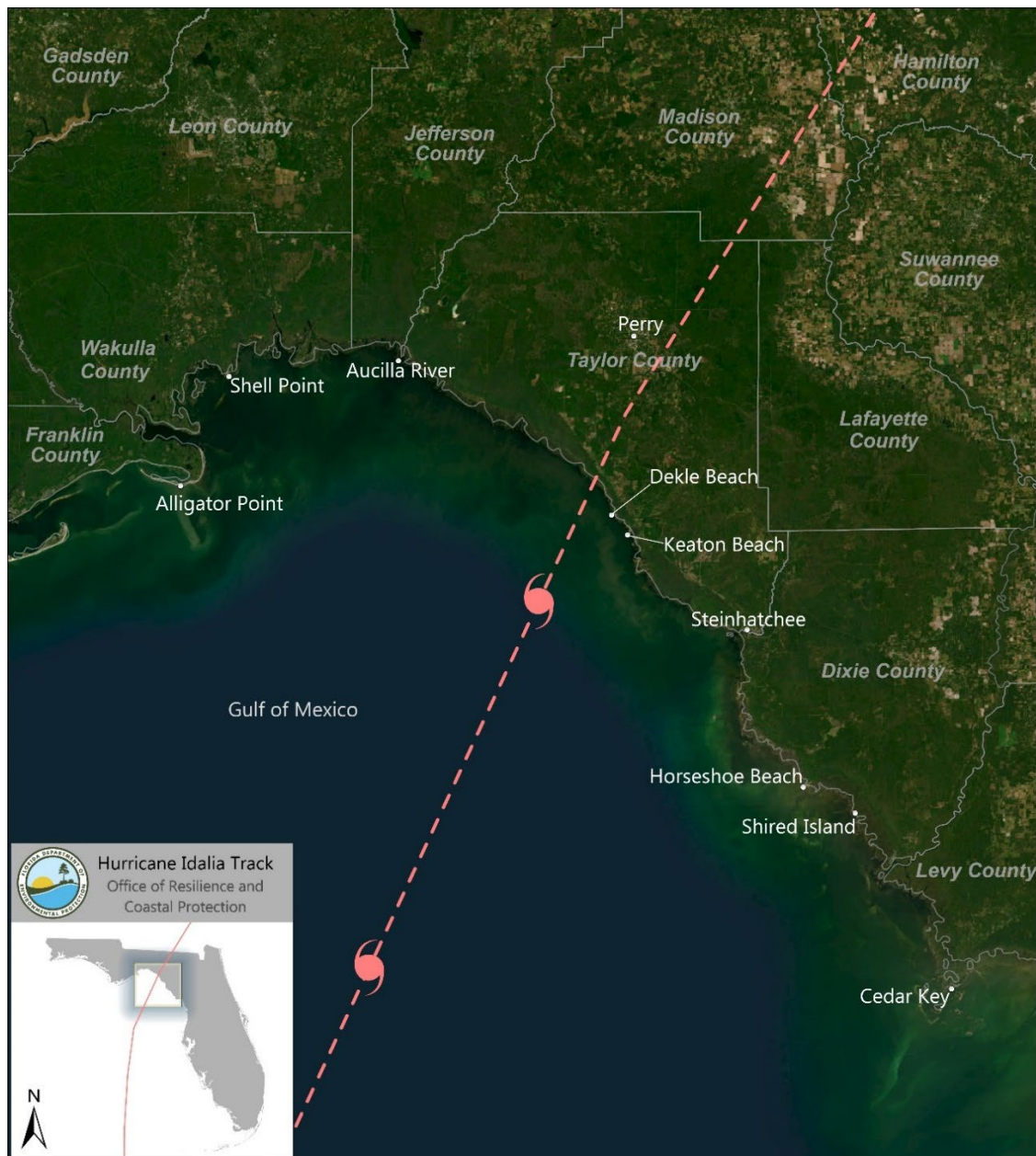


Figure 3. Hurricane Idalia’s track as it made landfall in Florida’s Big Bend Gulf Coast.

Distribution of Hurricane Idalia’s spatial wind field at landfall on Florida's Big Bend Coast is illustrated in **Figure 4**.

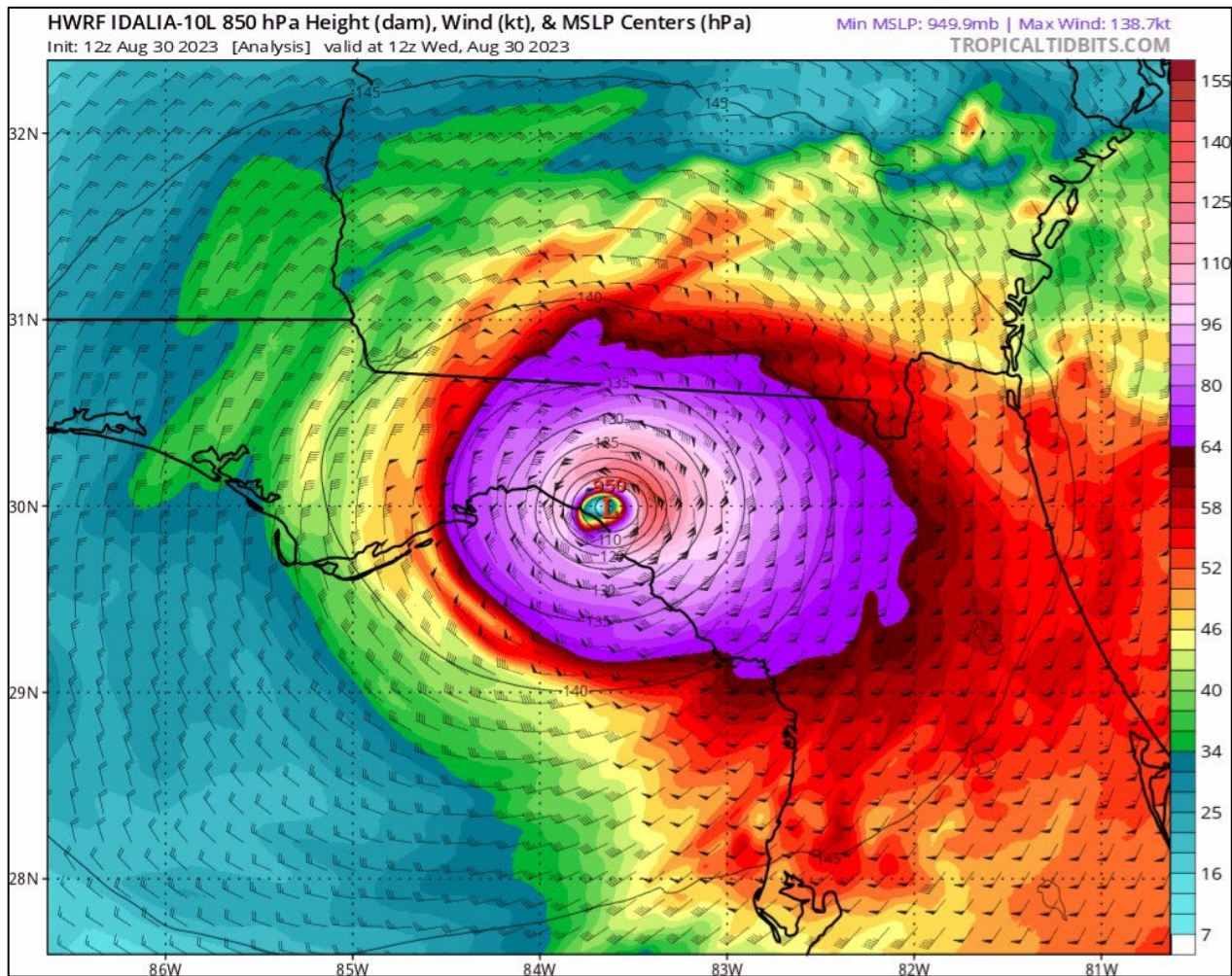


Figure 4. Spatial distribution of Hurricane Idalia’s wind field at landfall on Florida’s Big Bend Coast (source: Tropical Tidbits).

Wind Data, offshore wave heights and peak storm tide levels were collected from different recording stations maintained by NOAA (**Figure 5**). During the passage of the eye of Idalia, an anemometer reading (located at nearly 33 feet above the ground) from a NOAA meteorological station at Keaton Beach (station KTNF1) indicated that the maximum sustained wind speed was approximately 75 mph. The barometric pressure dropped to approximately 962 mb (28.4 inches of mercury) at that time. Immediately after the passage of Idalia’s eye, a drastic reversal of wind direction indicates the counterclockwise rotation of the hurricane wind field (**Figure 6**).

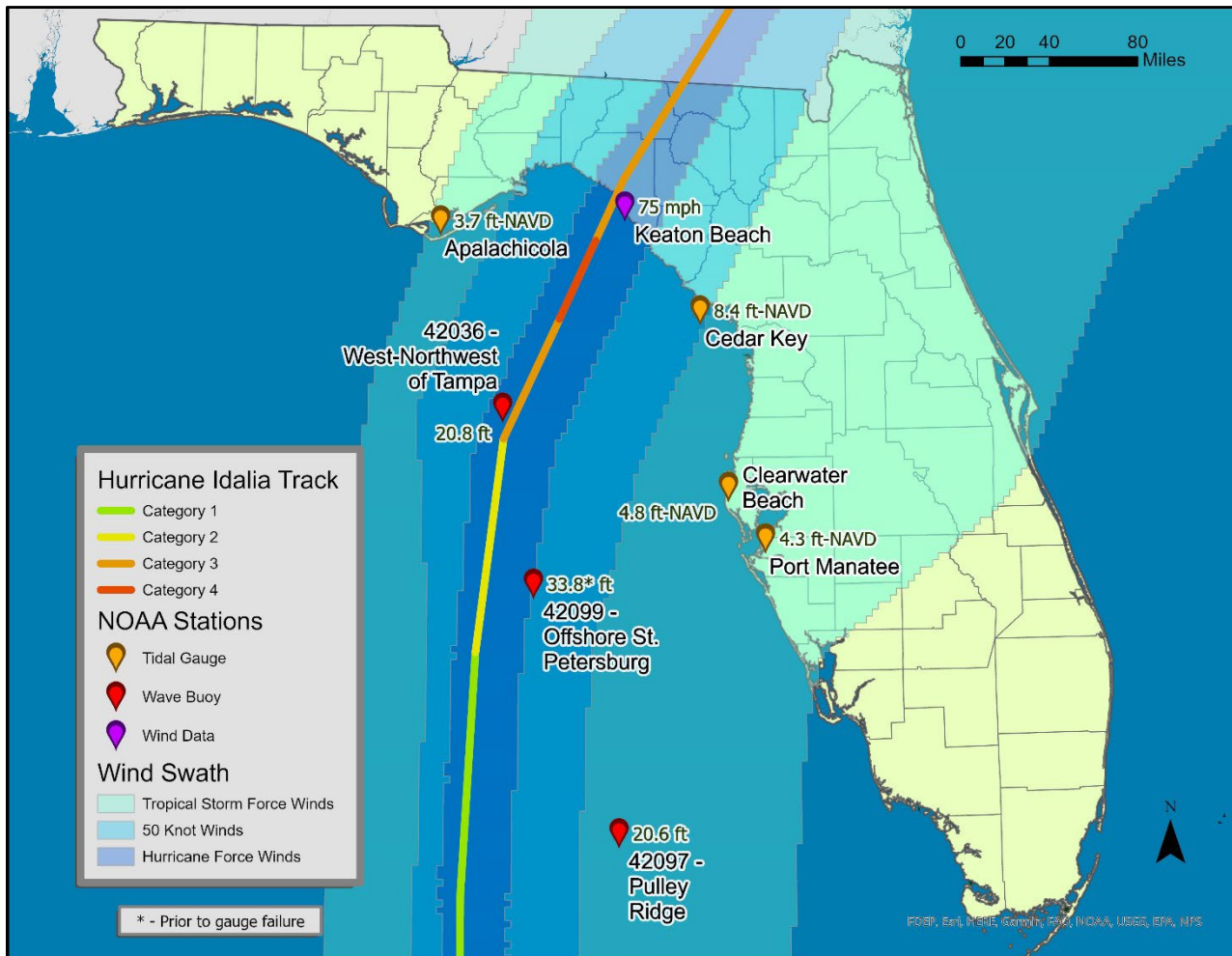


Figure 5. Hurricane Idalia - maximum sustained wind, peak storm tide levels and maximum offshore wave heights from NOAA recording stations (Data sources – NOAA).

Wave data was recorded at several of NOAA’s National Data Buoy Center (NDBC) offshore wave gauges located in the Gulf of Mexico. At 9:26 p.m. EDT, August 29, NDBC Station - 42099 located offshore from St. Petersburg recorded a maximum significant wave height of 33.8 feet before it stopped transmitting data. Put into perspective, wave heights of over 30 feet are typically associated with Category 4 and 5 hurricanes. For comparison, at the passage of Hurricane Ian in 2022, the peak measured significant wave height offshore from Naples was 27.2 feet. **Figure 7** shows time series of significant wave heights recorded at different NDBC stations located near Idalia’s track in the Gulf of Mexico.

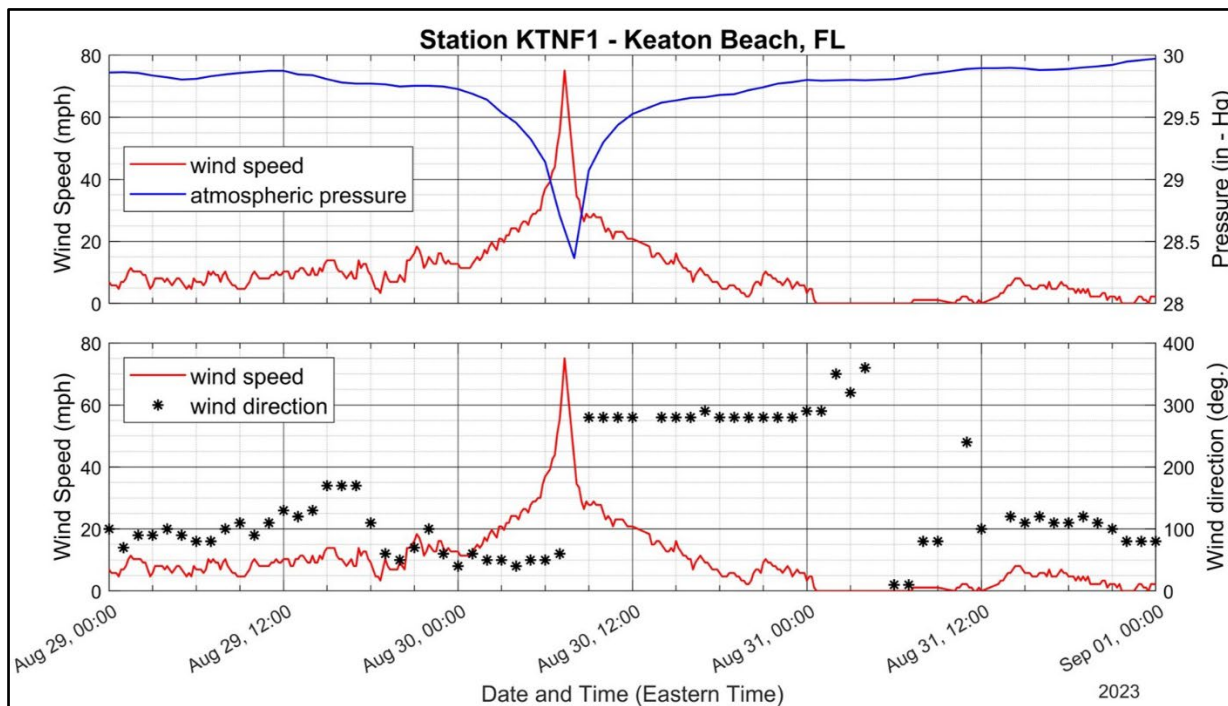


Figure 6. Time series of wind speed, direction, and atmospheric pressure at Keaton Beach.

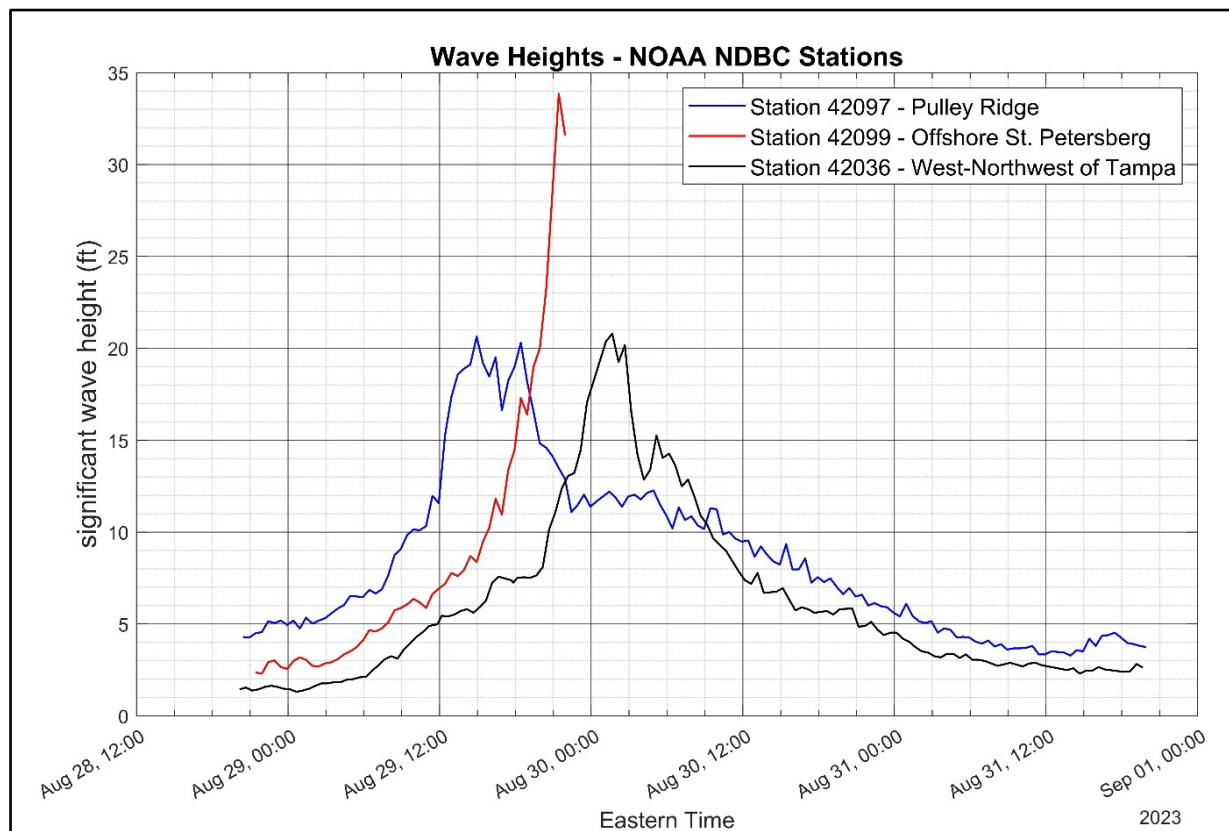


Figure 7. Significant wave heights recorded at NOAA offshore buoys in the Gulf of Mexico.

Idalia came ashore with a life-threatening storm surge in the Big Bend region. Storm tide data in the worst flooded area is scarce; however, some data is available from several of NOAA's recording tide gauges. A NOAA tide gauge at Cedar Key recorded a maximum water level of +8.4 feet NAVD (**Figure 8**) at 7:48 a.m. EDT, August 30, when Idalia made landfall further north near Keaton Beach. In southwest Florida, a maximum water level of +4.8 feet NAVD was recorded at Clearwater Beach in Pinellas County and another tide gauge at Port Manatee in Tampa Bay recorded +4.3 feet NAVD (**Figure 9**).

In addition to NOAA tide gauges, special sensors were deployed by the United States Geological Survey (USGS) at Clearwater Beach to measure water surface elevation and wave characteristics. One of these sensors, located at the end of the Big Pier 60 fishing pier, measured the maximum water surface elevation of +4.64 feet NAVD and significant wave heights up to 12.9 feet between 6:30 a.m. to 7:00 a.m. on August 30 (**Figure 10**).

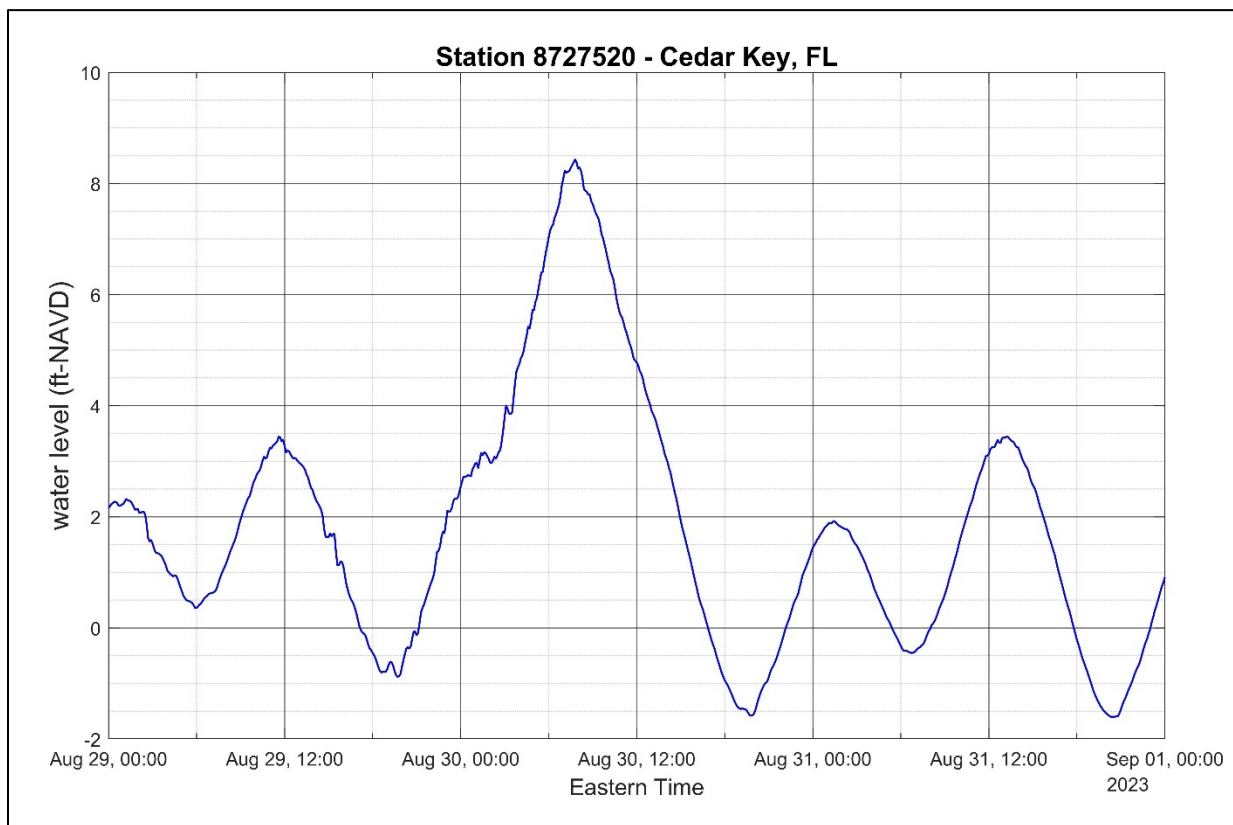


Figure 8. Water level elevations at Cedar Key, FL (data source: NOAA).

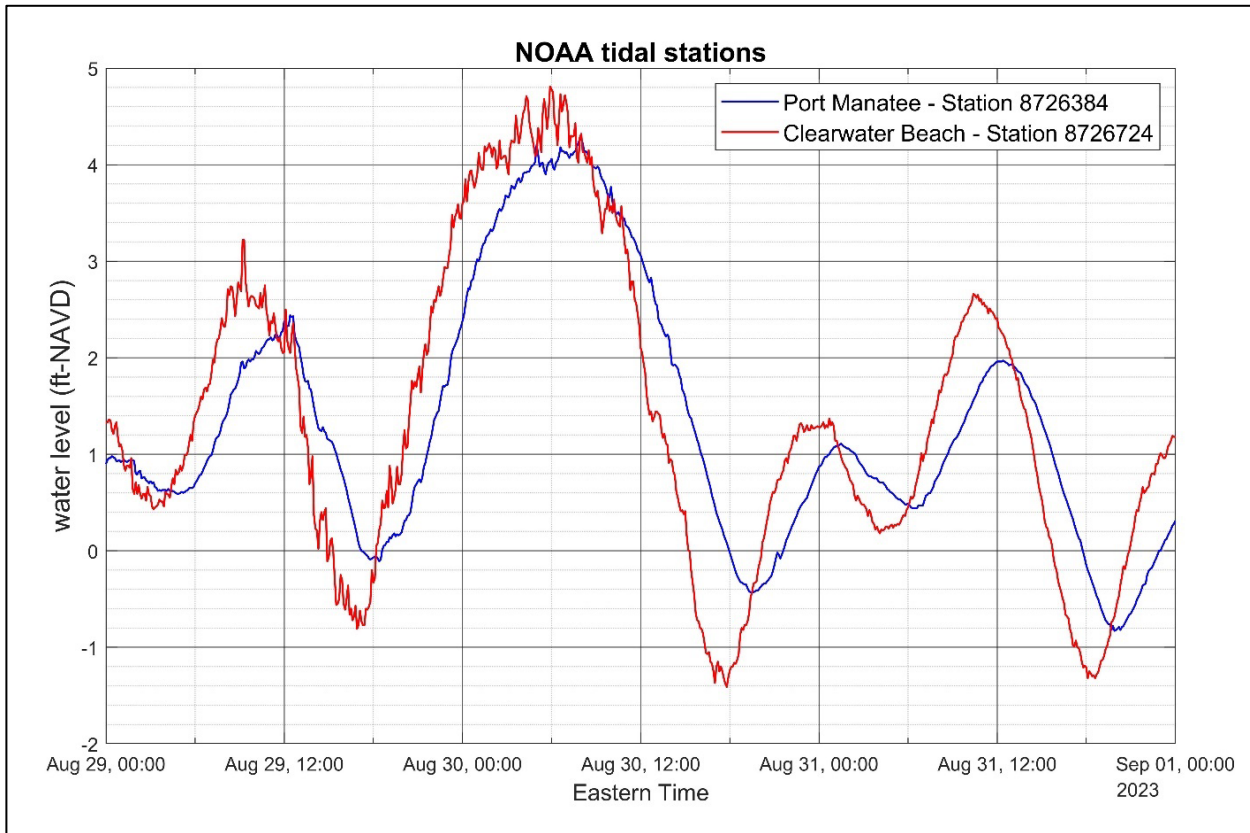


Figure 9. Water level elevations at Clearwater Beach and Port Manatee (data source: NOAA).

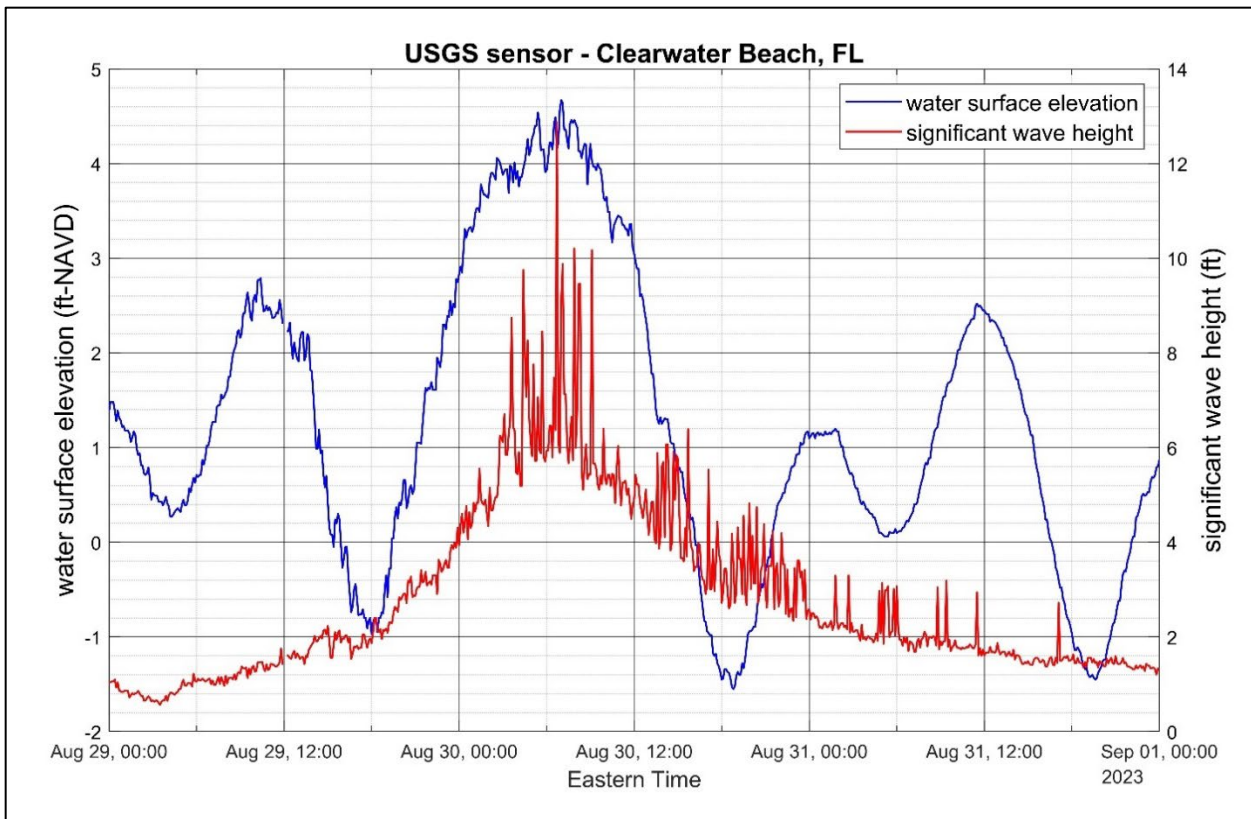


Figure 10. Water level elevations and wave heights at Clearwater Beach collected from a temporary sensor deployed by the USGS at the end of the Big Pier 60 fishing pier.

IV. Hurricane Idalia Impact Summary and Overview

This section provides a summary of the beach and dune erosion, and structural damage, that occurred in the more substantially affected coastal counties. **Table 1** lists beach and dune erosion conditions around the state of Florida, starting with Franklin County in the lee of the storm in northwest Florida and continuing southward through Charlotte County. Areas with no erosion are listed as 0 in **Table 1**. Reference or Range (“R”) monuments are survey markers established and maintained since 1972 by the Department that are spaced approximately every 1000 feet to measure beach and dune conditions in counties that have established Coastal Construction Control Lines (CCCL). The Big Bend counties do not have CCCL’s and therefore do not have R-monuments, so the maps preceding the discussion of each of those counties are the best means of determining the location of those specific erosion areas. A graphic depiction of the classification of beach erosion conditions is provided in **Figure 11**.

Table 1. Beach and Dune Erosion Summary.

Franklin County

| Locations | Range Monuments | Erosion Condition |
|------------------------------------|-----------------|-------------------|
| Alligator Point | R196 – R210 | I |
| Southwest Cape to Lighthouse Point | R210 – R220 | I |
| Lighthouse Point | R220 – R222 | II |
| Lighthouse Point to Bald Point | R222 – R230 | I |
| Bald Point | R230 – R232 | II |

Wakulla County

| Locations | Range Monuments | Erosion Condition |
|--------------|-----------------|-------------------|
| Mashes Sands | N/A | II |
| Shell Point | N/A | I |

Taylor County

| Locations | Range Monuments | Erosion Condition |
|--------------|-----------------|-------------------|
| Keaton Beach | N/A | I |
| Dekle Beach | N/A | I |
| Dark Island | N/A | I |

Dixie County

| Locations | Range Monuments | Erosion Condition |
|-----------------------------|-----------------|-------------------|
| Cotton Island | N/A | IV |
| Bird Island | N/A | IV |
| Butler Island | N/A | IV |
| Shired Island – north end | N/A | IV |
| Shired Island – south beach | N/A | I |

| | | |
|--------------------|-----|----|
| Big Pine Island | N/A | IV |
| Little Pine Island | N/A | IV |

Levy County

| | | |
|---------------------------------------|-------------|----|
| Deer Island – north end | N/A | IV |
| Deer Island – central and south beach | N/A | I |
| Cedar Key – Piney Point | N/A | IV |
| Cedar Key – Airport Road Beach | N/A | I |
| Cedar Key – G Street | V302 – V312 | I |
| Cedar Key – 1 st Street | V312 – V318 | I |
| Cedar Park – Lil Shark Park | N/A | I |
| Cedar Key – Fenimore Mill Condos | N/A | I |
| Gomez Key | N/A | IV |
| Atsena Otie Key | N/A | IV |
| Seahorse Key | N/A | IV |

Pasco County

| | | |
|-------------|------------------------------------|----|
| Anclote Key | County line to northern end of key | IV |
|-------------|------------------------------------|----|

Pinellas County

| Locations | Range Monuments | Erosion Condition |
|---|------------------------------------|-------------------|
| Anclote Key | County line to southern end of Key | IV |
| Three Rooker Bar (north half) | V335 | IV |
| Three Rooker Bar (south half) | V335 | II |
| Honeymoon Island – northern tip/ beach side | N/A | IV |
| Honeymoon Island – beach side of island | R1 – R7 | II |
| Honeymoon Island State Park | R7 – R13 | II |
| Honeymoon Island State Park | R13 – R15 | I |
| Caladesi Island State Park | R15 – R30 | 0 |
| Caladesi Island State Park | R30 – R32 | II |
| Clearwater Beach | R32 – R35 | I |
| Clearwater Beach | R35 – R38 | II |
| Clearwater Beach | R38 – R41 | I |
| Clearwater Beach | R41 – R46 | II |
| Clearwater Pass – North Shore | R46 – R51 | 0 |
| Sand Key | R51 – R52 | I |
| Sand Key | R52 – R54 | II |
| Sand Key | R54 – R56 | I |
| Sand Key | R56 – R57 | 0 |
| Sand Key | R57 – R59 | I |
| Sand Key | R59 – R62 | II |
| Sand Key | R62 – R63 | I |
| Sand Key | R63 – R67 | II |
| Sand Key | R67 – R68 | I |
| Sand Key | R68 – R69 | II |
| Sand Key | R69 – R70 | I |
| Sand Key | R70 – R75 | II |
| Sand Key | R75 – R83 | III |

| | | |
|-------------------------------|-------------|-----|
| Sand Key | R83 – R84 | II |
| Sand Key | R84 – R85 | IV |
| Sand Key | R85 – R87 | II |
| Sand Key | R87 – R88 | III |
| Sand Key | R88 – R91 | II |
| Sand Key | R91 – R92 | I |
| Sand Key | R92 – R93 | III |
| Sand Key | R93 – R95 | II |
| Sand Key | R95 – R97 | III |
| Sand Key | R97 – R100 | II |
| Sand Key | R100 – R101 | I |
| Sand Key | R101 – R104 | III |
| Sand Key | R104 – R105 | II |
| Sand Key | R105 – R113 | III |
| Sand Key | R113 – R115 | II |
| Sand Key | R115 – R118 | I |
| Sand Key | R118 – R119 | II |
| Sand Key | R119 – R121 | III |
| Sand Key | R121 – R125 | II |
| John’s Pass | R125 – R126 | 0 |
| Treasure Island | R126 - R127 | II |
| Treasure Island | R127 – R128 | I |
| Treasure Island | R128 – R129 | 0 |
| Treasure Island | R129 – R130 | II |
| Treasure Island | R130 - R134 | 0 |
| Treasure Island | R134 – R136 | I |
| Treasure Island | R136 – R137 | II |
| Treasure Island | R137 – R141 | III |
| Treasure Island, Sunset Beach | R141 – R142 | IV |
| Treasure Island | R142 – R143 | II |
| Blind Pass | R143 – R144 | 0 |
| Long Key, Upham Beach | R144 – R147 | I |
| Long Key, St. Pete Beach | R147 – R152 | 0 |
| Long Key, St. Pete Beach | R152 – R153 | I |
| Long Key, St. Pete Beach | R153 – R154 | 0 |
| Long Key, St. Pete Beach | R154 – R159 | II |
| Long Key, Pass-A-Grille | R159 – R163 | I |
| Long Key, Pass-A-Grille | R163 – R166 | IV |
| Shell Key Preserve | R166 – R168 | 0 |
| Mullet Key, Ft. De Soto Park | R168 – R175 | I |
| Mullet Key, Ft. De Soto Park | R175 – R176 | II |
| Mullet Key, Ft. De Soto Park | R176 – R179 | I |
| Mullet Key, Ft. De Soto Park | R179 – R180 | III |
| Mullet Key, Ft. De Soto Park | R180 – R181 | 0 |
| Mullet Key, Ft. De Soto Park | R181 – R183 | I |
| Mullet Key, Ft. De Soto Park | R183 – R184 | II |
| Mullet Key, Ft. De Soto Park | R184 – R192 | I |

Manatee County

| Locations | Range Monuments | Erosion Condition |
|----------------------------------|------------------------|--------------------------|
| Anna Maria Island | R1 – R10 | II |
| Anna Maria Island | R10 – R11 | I |
| Anna Maria Island | R11 – R15 | II |
| Anna Maria Island | R15 – R22 | I |
| Anna Maria Island | R22 – R29 | II |
| Anna Maria Island | R29 – R31 | I |
| Anna Maria Island | R31 – R32 | II |
| Anna Maria Island | R32 – R33 | I |
| Anna Maria Island | R33 – R37 | II |
| Anna Maria Island/ Coquina Beach | R37 – R41 N | I |
| Longboat Key | R42 - R47 | I |
| Longboat Key | R47 – R61 | II |
| Longboat Key | R61 – R64 | I |
| Longboat Key | R64 – R67 | II |

Sarasota County

| Locations | Range Monuments | Erosion Condition |
|-------------------------------|------------------------|--------------------------|
| Longboat Key | R1 – R8 | II |
| Longboat Key | R8 – R11 | I |
| Longboat Key | R11 – R12 | II |
| Longboat Key | R12 – R13 | I |
| Longboat Key | R13 – R17 | II |
| Longboat Key | R17 – R18 | I |
| Longboat Key | R18 – R21 | II |
| Longboat Key | R21 – R26 | I |
| Longboat Key | R26 – R28 | II |
| Longboat Key | R28 – R29.4 | I |
| New Pass area | R30 – R31 | 0 |
| Lido Key | R31 – R34 | II |
| Lido Key | R34 – R35 | I |
| Lido Key | R35 – R36 | II |
| Lido Key | R36 – R44 | I |
| Big Sarasota Pass/ Siesta Key | R44 – R45 | 0 |
| Siesta Key | R45 – R46 | II |
| Siesta Key | R46 – R58 | I |
| Siesta Key | R58 – R62 | II |
| Siesta Key | R62 – R69 | 0 |
| Siesta Key | R69 – R72 | I |
| Siesta Key | R72 – R75 | II |
| Siesta Key | R75 – R76 | III |
| Siesta Key/ Casey Key | R76 – R88 | I |
| Casey Key | R88 – R90 | II |
| Casey Key | R90 – R93 | I |
| Casey Key | R93 – R98 | II |
| Casey Key | R98 – R99 | 0 |
| Casey Key | R99 – R100 | III |
| Casey Key | R100 – R110 | II |
| Casey Key | R110 – R114.8 | I |

| | | |
|-----------------|---------------|-----|
| Venice Inlet | R114.8 – R115 | 0 |
| Venice Beach | R115 – R117 | II |
| Venice Beach | R117 – R123 | I |
| Venice Beach | R123 – R124 | II |
| Venice Beach | R124 – R135 | I |
| Caspersen Beach | R135 – R146 | II |
| Manasota Key | R146 – R147 | III |
| Manasota Key | R147 – R148 | I |
| Manasota Key | R148 – R149 | III |
| Manasota Key | R149 – R156 | II |
| Manasota Key | R156 – R157 | I |
| Manasota Key | R157 – R159 | II |
| Manasota Key | R159 – R166 | I |
| Manasota Key | R166 – R168 | II |
| Manasota Key | R168 – R169 | I |
| Manasota Key | R169 – R171 | II |
| Manasota Key | R171 – R173 | I |
| Manasota Key | R173 – R174 | III |
| Manasota Key | R174 – R177 | II |
| Manasota Key | R177 – R183 | I |

Charlotte County

| Locations | Range Monuments | Erosion Condition |
|--------------------------------|------------------------|--------------------------|
| Manasota Key - Englewood Beach | R1 – R3 | I |
| Manasota Key - Englewood Beach | R3 – R10 | 0 |
| Manasota Key - Englewood Beach | R10 – R17 | II |
| Stump Pass State Park | R17 – R19 | I |
| Stump Pass State Park | R19 – R21.9 | 0 |
| Stump Pass | R21.9 – R22 | 0 |

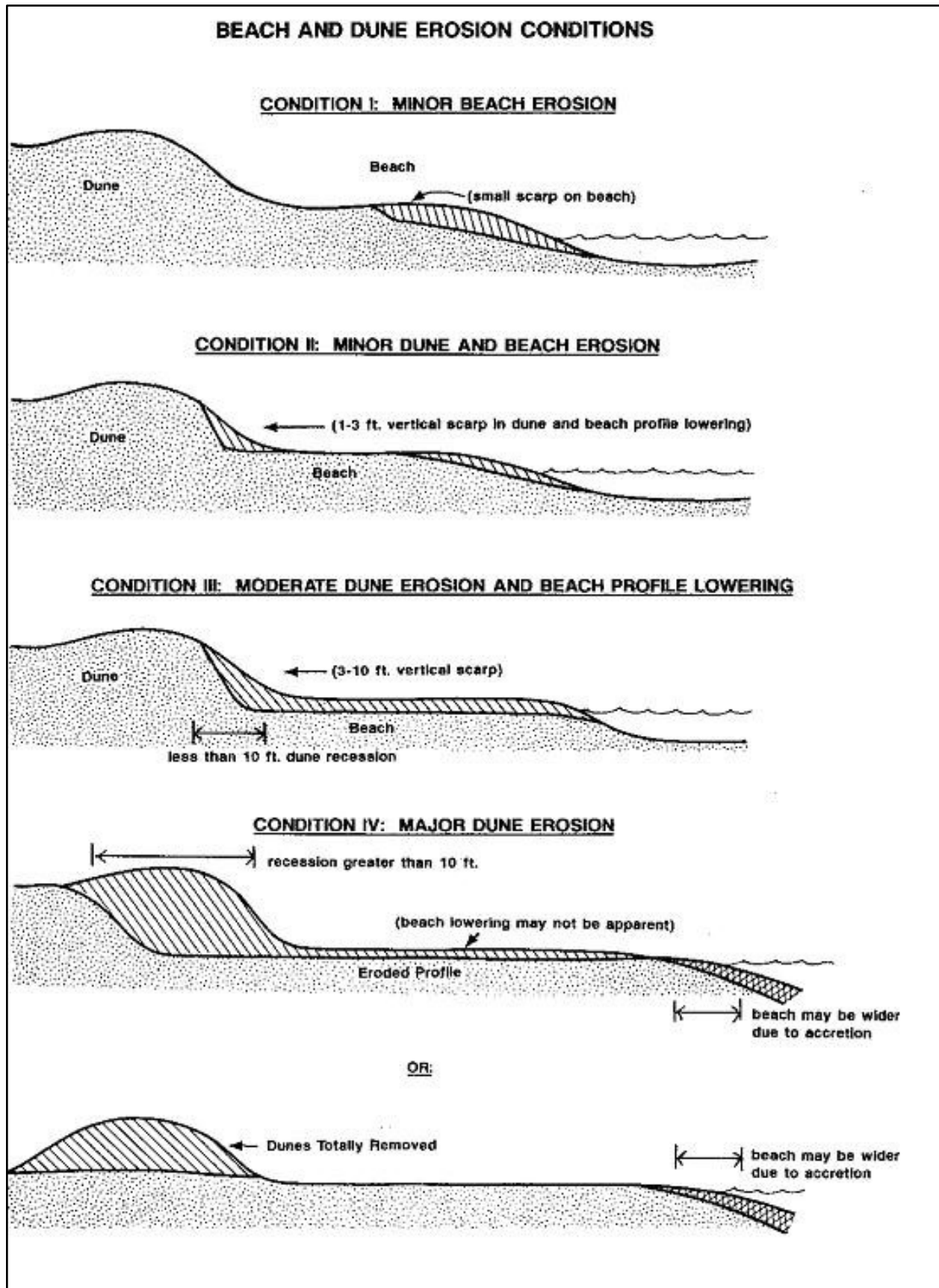


Figure 11. Beach Erosion Conditions I to IV.

Major Structural Damage

A summary of damage to coastal armoring, including seawalls, bulkheads, revetments, or other rigid coastal protection structures fronting on the Gulf of Mexico, is provided in **Table 2**. Not included in this table is damage to retaining walls, concrete block walls, or concrete gravity walls that do not provide protection from erosion and storm tides and waves or armoring on interior tidal waters. Also not included are jetty structures constructed for navigation at ports and inlets.

Hurricane Idalia caused major damage to 306 major structures in the Coastal Building Zone. The most severe structural damage on the coast due to Idalia occurred in the Big Bend Region in Taylor, Dixie, and Levy Counties. An overall summary of structural damage to major structures is given in **Table 3**, and **Figure 12** shows this data geographically and relative to the storm track. A more detailed description of these impacts by each county is provided in **Section V** of this report.

Table 2. Summary of Coastal Armoring Damage Caused by Hurricane Idalia.

| Hurricane Idalia – Armoring Damage | | |
|---|----------------------------|----------------------------|
| County | Major Damage (Feet) | Minor Damage (Feet) |
| Taylor | 0 | 0 |
| Dixie | 559 | 739 |
| Levy | 544 | 0 |
| Pinellas | 0 | 74 |
| Manatee | 0 | 0 |
| Sarasota | 1135 | 2,682 |
| Charlotte | 0 | 320 |
| TOTAL | 2,238 (0.43 miles) | 4,972 (0.72 miles) |

Table 3. Summary of Major Structural Damage to Major Structures by Hurricane Idalia along the Gulf of Mexico Coast of Florida.

| Hurricane Idalia – Major Structural Damages | | | | |
|--|--|---|---|------------------------------------|
| County | # Single-Family Dwellings Damaged | # Multi-family Dwellings¹ Damaged | # Other Major Structures² Damaged | Total # Damaged³ |
| Taylor | 87 | 2 | 17 | 106 |
| Dixie | 103 | 2 | 60 | 165 |
| Levy | 4 | 14 | 6 | 24 |
| Pinellas | 1 | 2 | 0 | 3 |
| Manatee | 3 | 0 | 0 | 3 |
| Sarasota | 3 | 0 | 0 | 3 |
| Charlotte | 1 | 1 | 0 | 2 |
| TOTAL | 202 | 21 | 83 | 306 |

- 1) Multi-family dwellings include condominiums, townhouses, apartments, hotels, and motels.
- 2) Other major structures include commercial buildings (restaurants, stores, beach bars, etc.), recreational buildings and non-habitable major structures (i.e., piers, pools, pavilions, and parking lots).
- 3) Not included in this summary are minor structures (i.e., walkways, decks, driveways, patios, etc.), coastal and shore protection structures (i.e., seawalls, revetments, sills, groins, jetties), minor damage to major structures, structures located inland of the Coastal Building Zone, or structures with hydrostatic flooding damage caused by the storm surge or storm water runoff.

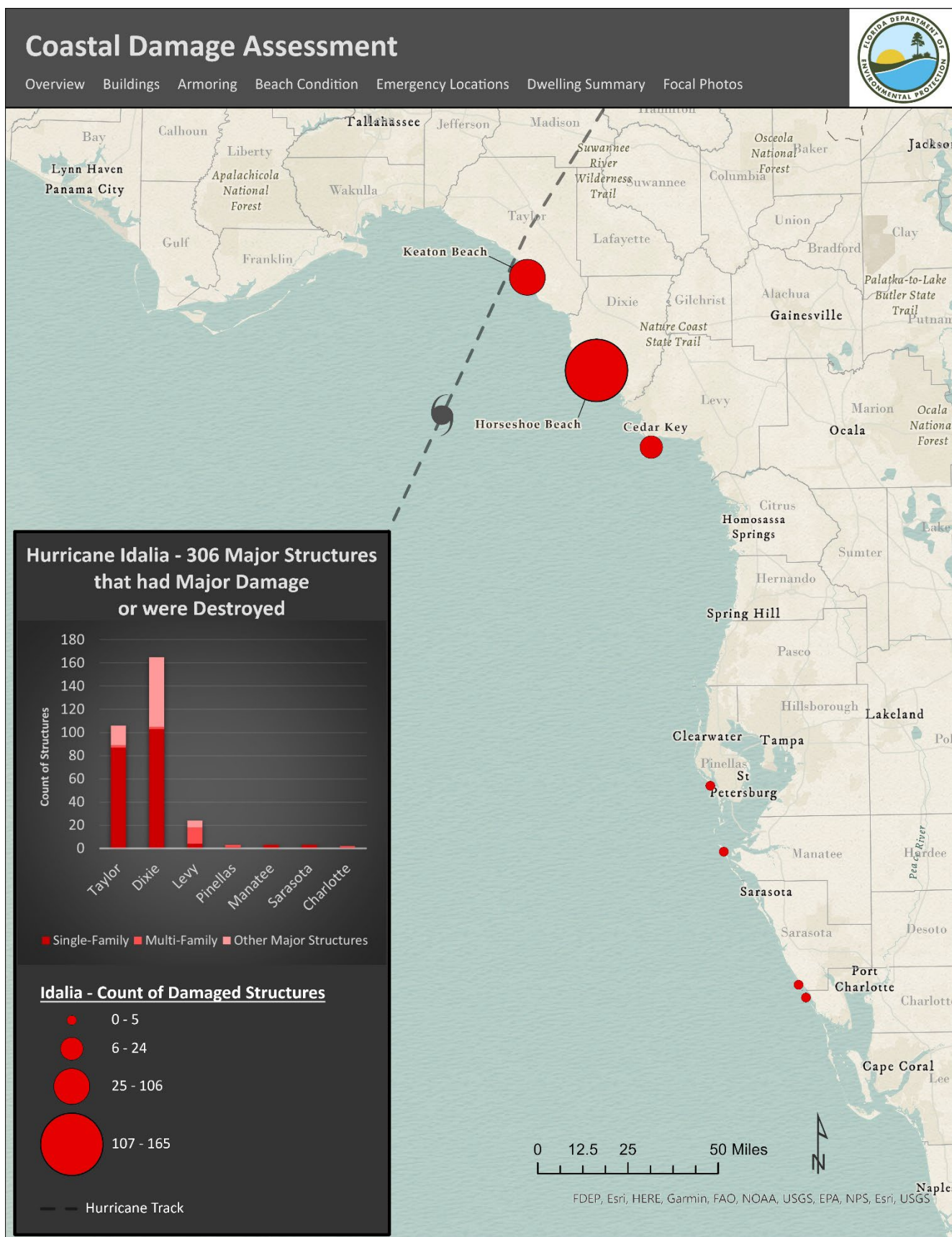


Figure 12. Summary of major damage to major structures from Hurricane Idalia.

V. Detailed Damage Assessment by County

The counties with the most significant damages are discussed individually, including Florida's Big Bend coastal counties extending from Taylor through Levy and the southwest Florida counties of Pinellas through Charlotte.

Each detailed county summary is preceded by a county map showing the qualitative beach and dune erosion conditions graphically displayed. Each detailed county summary also includes photographic examples of the type of damage sustained. County maps showing beach and dune erosion conditions are also included for Pasco County. Erosion conditions for Taylor County can be seen on the map in **Figure 13**.

Taylor County



Figure 13. Taylor County Beach and Dune Erosion Conditions from Hurricane Idalia.

Taylor County

Taylor County, lying between Jefferson and Dixie counties, is one of eight counties within the Big Bend Gulf Coast Region as set forth in the department's *Strategic Beach Management Plan* (FDEP, 2023). Taylor County has a predominately wetland coast and includes the Big Bend Seagrasses Aquatic Preserve (**Figure 13**). Taylor County includes the following beach and coastal communities: Dekle Beach, Ezell Beach, Keaton Beach, Cedar Island, Dark Island, Bird Island, and Fish Creek.

Storm Effects and Erosion Conditions

The eye of Idalia made landfall just north of Dekle Beach and Keaton Beach, so much of Taylor County experienced the storm's greatest wind impact with a lower storm surge than Dixie County to the south. The storm tides of Idalia in Taylor County appear to have ranged between six and eight feet above sea level.

Taylor County has a 0.2-mile segment of critical erosion threatening private development at Dekle Beach. The erosion from Idalia on the small intermittent beaches and sandy shorelines of Taylor County was generally minor beach erosion (condition I). Overwash of sand and shell was experienced in the wetlands along much of this coast. However, there did not appear to be any significant loss of wetland shorelines due to erosion.

The Department's Big Bend Seagrasses Aquatic Preserve staff conducted post-Idalia seagrass surveys near Keaton Beach to compare with pre-storm surveys conducted on August 25, 2022. An analysis of their sampling determined there was no decline in abundance or density of seagrasses or of community composition due to the storm. In other words, the healthy seagrass beds survived Idalia with no statistically significant changes.

Storm Damage

When the March 1993 Storm of the Century swept through the Big Bend, severe damage was sustained in Taylor County from the storm surge which reached +11.8 feet NAVD at Dekle Beach and +11.4 feet NAVD at Keaton Beach (NOAA National Disaster Survey Report). Many homes were destroyed in Dekle Beach and Keaton Beach, where tragically nearly a dozen fatalities were also experienced. In contrast, Idalia destroyed only one single-family dwelling along with 12 other major structures, which were largely garage or barn type buildings designed to shelter vehicles, boats, and campers.

Idalia caused major structural damage to 106 major structures within the Coastal Building Zone of Taylor County (determined by the FEMA V-Zone). Most of the coastal building damage in Taylor County was due to the wind and not the storm surge and waves of Hurricane Idalia. In addition, 28 buildings had understructure damage, which included damaged utilities, breakaway walls, lost storage rooms and access stairways. Also, five buildings sustained storm surge flooding without visible structural damage.

Dekle Beach is the northernmost community on the coast of Taylor County. No major structures were destroyed, but 11 single-family dwellings sustained major damage from the wind, including one that had major roof damage (**Figure 14**). South of Dekle Beach, three single-family dwellings were damaged at the gulfward end of J.L. Gibson Road. To the south, the small community of Ezell Beach sustained damage to seven single-family dwellings and one other major structure.



Figure 14. Major roof damage in Dekle Beach.

Keaton Beach is the largest coastal community in Taylor County. One single-family dwelling was destroyed (**Figure 15**) and 43 other single-family dwellings sustained major damage from the winds of Idalia. Two multifamily buildings were also damaged as well as one other major structure. Four other major structures were destroyed by the wind. There was also shoaling at the canal entrances.



Figure 15. House destroyed by wind in Keaton Beach.

South of Keaton Beach, 14 single-family dwellings were damaged by the wind on Cedar Island, along with seven other major structures. These seven other major structures, which were destroyed, were designed to shelter recreation vehicles (**Figure 16**).

South of Cedar Island is the community of Dark Island. Six single-family dwellings on Dark Island sustained major damage from the wind. Two other major structures were damaged, and one was destroyed by the wind. In addition, yet not considered a major structure, a recreation vehicle that was not evacuated was destroyed and carried gulfward of the existing bulkhead on Dark Island.

On Bird Island, a storage building was damaged as was a single-family dwelling at Fish Creek.



Figure 16. Wind damaged structure on Cedar Island.

Dixie County



Figure 17. Northern Dixie County Beach and Dune Erosion Conditions from Hurricane Idalia.



Figure 18. Southern Dixie County Beach and Dune Erosion Conditions from Hurricane Idalia.

Dixie County

Dixie County, lying between Taylor and Levy counties, is one of eight counties within the Big Bend Gulf Coast Region as set forth in the department's *Strategic Beach Management Plan* (FDEP, 2023). Dixie County has a predominately wetland coast with the Lower Suwannee River National Wildlife Refuge and the Big Bend Seagrasses Aquatic Preserve (**Figures 17 and 18**). The small fishing and residential community of Horseshoe Beach provides the only significant development along this mostly natural coastline. Offshore from Horseshoe Beach, Bird Island and Cotton Island are also developed with single-family residences.

Storm Effects and Erosion Conditions

A WeatherSTEM station at Horseshoe Beach captured wind and barometric pressure data during the storm until roughly 7:20 a.m. when debris being carried on the storm surge battered the antenna and caused failure of the station. The highest wind gust measured by the station prior to failure was 81 mph.

Dixie County has critically eroded beaches on three small islands – Bird Island, Cotton Island and Shired Island. The erosion from Idalia on these islands varied depending on the existence of shell mounds. For example, along much of Shired Island, minor beach erosion (condition I) was sustained as the storm surge rose several feet above the beach berm and inundated the coastal barrier (**Figure 19**). However, the ancient shell mound at the north end of the island presented major dune erosion (condition IV) due to the severe deflation and loss of mound material (**Figure 20**). A substantial overwash of sand and shell was experienced into the wetlands behind the low narrow beach ridges of this coast (**Figure 21**). Throughout most of the county, the natural shoreline conditions are anchored by oyster growth and wetland vegetation (*Spartina alterniflora*, *Spartina patens*, *Juncus roemerianus*, etc.) and experienced little if any shoreline retreat.



Figure 19. Shired Island beach erosion.



Figure 20. Severe erosion to the ancient shell mound, Shired Island.



Figure 21. Beach overwash into wetland, Shired Island.

The storm tides of Hurricane Idalia in Dixie County appeared to have generally ranged between eight and 12 feet above sea level. The hurricane's southern eye wall appeared to have impacted Dixie County and brought what was likely the highest storm tides from this event. **Figures 22 and 23** compare the pre-storm conditions and the storm surge prior to failure of the camera at the WeatherSTEM station at Horseshoe Beach. The March 1993 Storm of the Century, which was an extratropical cyclone that pushed a frontal wind field causing a major storm surge, inflicted comparable flooding as Hurricane Idalia in Horseshoe Beach. NOAA storm tide data from the March 1993 storm ranged from +11.1 feet to +11.4 feet NAVD in Dixie County.



Figure 22. Photo from Horseshoe Beach WeatherSTEM station at 8:00 p.m. August 29, 2023, before the storm.



Figure 23. Photo from Horseshoe Beach WeatherSTEM station at 7:20 a.m. August 30, 2023, during the storm.

Bird Island and Cotton Island, which are designated critically eroded, are located just offshore and south of Horseshoe Beach. Bird Island sustained major beach and dune erosion (condition IV) along its northwest facing shoreline, and Cotton Island likewise sustained major beach and dune erosion

(condition IV) at its southwest point behind a recently constructed oyster bag breakwater. NOAA aerial photos from before and after Idalia show the severe erosion to Cotton Island (**Figure 24**).



Figure 24. Cotton Island before (left) and after (right) Hurricane Idalia (NOAA aerial photography, 2023).

Storm Damage

Hurricane Idalia caused the most building damage along the coast of Dixie County than any storm since the March 1993 storm. Idalia caused major structural damage to 165 major structures within the Coastal Building Zone of Dixie County (determined by the FEMA V-Zone). Of these damaged structures, 92 major structures were destroyed in Horseshoe Beach and four were destroyed on Shired Island. Most of the coastal building damage was due to the storm surge and waves of Hurricane Idalia.

As a small gulf fishing and residential community lined with canals, Horseshoe Beach sustained damage to most of its docks, wharves, and boat mooring facilities. The marina buildings sustained major damage and the Main Canal was clogged with extensive debris from the damaged docks and sunken vessels as well as upland sheds, garages, houses, and motor vehicles (**Figure 25**). Shoaling, typically at the entrances of the canals, added to the inaccessibility to navigation which caused the commercial fleet of shrimp boats and crab trappers to lose access to their markets.



Figure 25. Truck in the Main Canal, Horseshoe Beach.

Many grade level residences were destroyed in the March 1993 storm and most of the reconstruction and new structures since then were elevated above the predicted 100-year storm surge elevation. During Idalia, the newer structures generally fared well with mostly grade level buildings being destroyed or substantially damaged. A total of 53 single-family dwellings were destroyed in Horseshoe Beach and another 50 were substantially damaged. In addition, 118 buildings had understructure damage, which included damaged utilities, breakaway walls, lost storage rooms and access stairways. Also 38 buildings sustained storm surge flooding without visible structural damage.

To the south of Horseshoe Beach, the paved road to Shired Island was washed out in three sections totaling 756 feet (**Figure 26**).



Figure 26. Road damage at Shired Island.

Another 30 feet of road pavement damage was sustained in Horseshoe Beach. Armoring damage was sustained to walls of concrete, timber, and composite fiber in Horseshoe Beach, where 559 feet of walls sustained major damage and another 739 feet sustained minor damage. **Figure 27** through **Figure 39** show examples of the damage that was sustained in Horseshoe Beach, Dixie County.



Figure 27. Mud line on interior Horseshoe Beach shed indicating storm surge elevation.



Figure 28. Major damage to the marina building, Horseshoe Beach.



Figure 29. Debris in Main Canal at marina, Horseshoe Beach.



Figure 30. Dwelling destroyed in Horseshoe Beach.



Figure 31. Dwelling destroyed in Horseshoe Beach.



Figure 32. Dwelling destroyed in Horseshoe Beach.



Figure 33. Dwelling destroyed in Horseshoe Beach.



Figure 34. A dwelling floated onto a road intersection at Horseshoe Beach.



Figure 35. Buildings and other debris in a canal, Horseshoe Beach.



Figure 36. On-grade dwelling destroyed, Horseshoe Beach.



Figure 37. Dwelling destroyed, Horseshoe Beach.



Figure 38. A roof carried into wetlands from dwelling below.



Figure 39. Pile supported dwelling destroyed, Horseshoe Beach.

Levy County

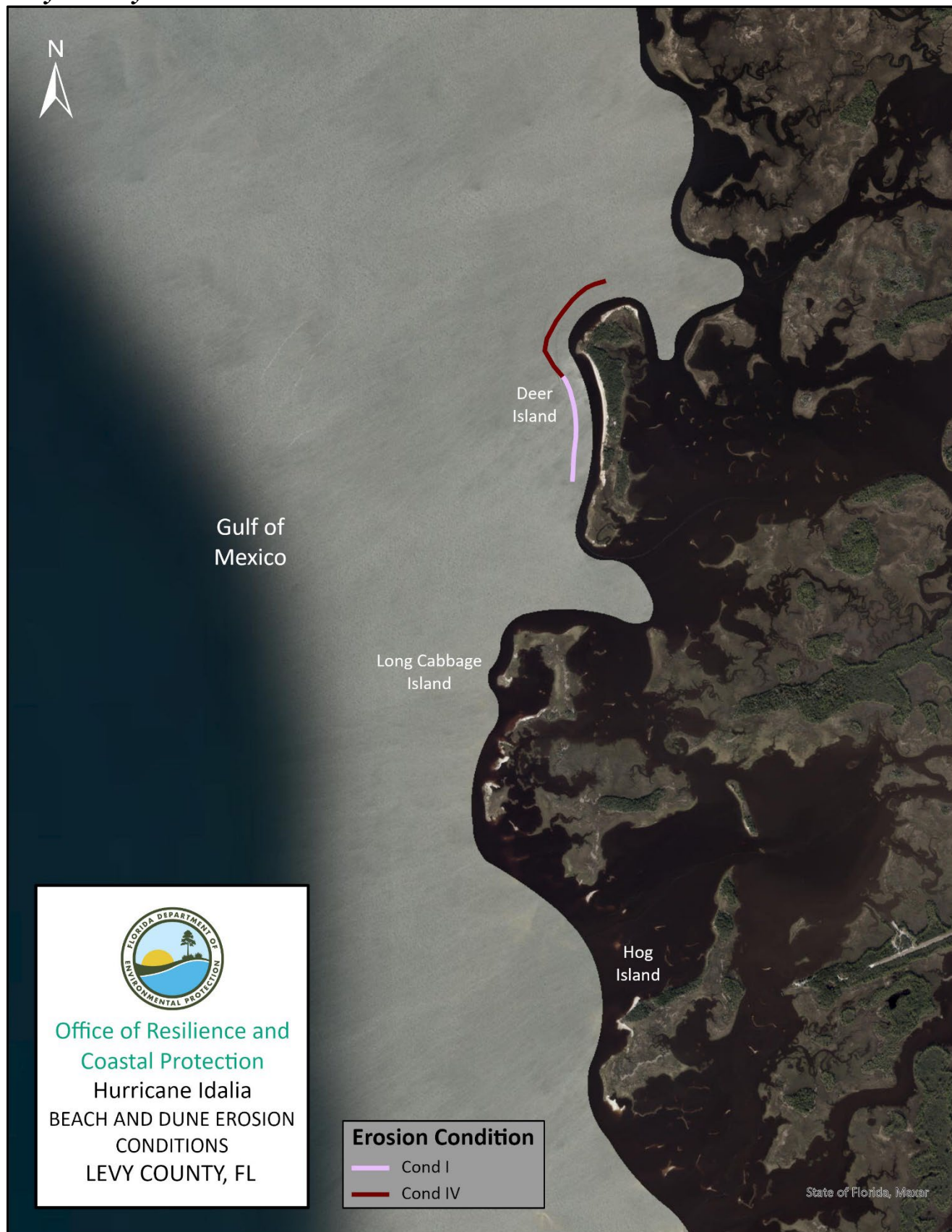


Figure 40. Northern Levy County Beach and Dune Erosion Conditions from Hurricane Idalia.



Figure 41. Southern Levy County Beach and Dune Erosion Conditions from Hurricane Idalia.

Levy County

Levy County, lying between Dixie and Citrus counties, is one of eight counties within the Big Bend Gulf Coast Region as set forth in the department's *Strategic Beach Management Plan* (FDEP, 2023). Taylor County has a predominately wetland coast and includes the Lower Suwanee National Wildlife Refuge, the Cedar Keys National Wildlife Refuge, and the Big Bend Seagrasses Aquatic Preserve (**Figures 40 and 41**). The small fishing, residential, and tourist community of Cedar Key provides the only significant development along this mostly natural coastline.

Storm Effects and Erosion Conditions

The eye of Idalia passed offshore from Levy County. Because the county was on the windward side of the eye, very high storm tides were experienced ranging generally between seven and nine feet above sea level. The NOAA tide station at Cedar Key measured a peak storm tide of +8.4 feet NAVD.

Levy County has three designated critical erosion areas. The town of Cedar Key has 0.5 mile of critical erosion along G Street and 1st Avenue. These segments are substantially armored now with seawalls and revetments. Along the northern reach of G Street and Joe Rains Beach, living shoreline projects successfully mitigated erosion from Idalia. Just north of the G Street living shoreline project, minor beach erosion (condition I) prevailed. The public beach and eastern shoreline of Cedar Key also sustained minor beach erosion (condition I).

Airport Key, the western island segment of the Cedar Key shoreline fronting Airport Road was also protected by a living shoreline project that included submerged Reef Ball breakwaters. This segment sustained only minor beach erosion (condition I). However, the south end of Airport Key at Piney Point sustained major dune erosion (condition IV).

North of Cedar Key, the northern 2,000 feet of Deer Island is designated critically eroded threatening an ancient shell midden. This shoreline was severely impacted by Idalia and sustained major beach and dune erosion (condition IV). The remainder of the island appeared to have sustained minor beach erosion (condition I) to minor beach and dune erosion (condition II). The rapidly disappearing Gomez Key to the northwest of Cedar Key also sustained major beach and dune erosion (condition IV), which is threatening a critically important nesting site for the threatened American Oystercatcher.

To the south and offshore from Cedar Key, Seahorse Key and Atsena Otie Key have designated

erosion areas. As determined by NOAA aerial photography flown after Idalia, both Seahorse Key and Atsena Otie Key appear to have sustained major beach and dune erosion (condition IV).

Storm Damage

Cedar Key has been impacted by many storms in the past, including a 19th century hurricane that destroyed the original town on Atsena Otie Key. The most recent storms to have significant impacts were Hurricane Elena (1985), the Storm of the Century (1993), Hurricane Gordon (2000), Hurricane Hermine (2016), and Tropical Storm Eta (2020).

Idalia caused major structural damage to 24 major structures within the Coastal Building Zone of Levy County. The coastal building damage in Cedar Key was due to both the storm surge and waves of Idalia as well as the wind. Four single-family dwellings sustained major wind damage, whereas 14 multifamily buildings sustained major structural damage from the storm surge and waves. Of the multifamily buildings, seven were motels. One of these was destroyed by the storm surge adjacent G Street (**Figure 42**) and five motel buildings were substantially damaged by the storm surge and waves on 1st Avenue and G Street. The other motel building sustained major wind damage. Two other major structures were destroyed and four sustained major structural damage. Wind damage was sustained to signs and other minor structures around Cedar Key (**Figure 43**).

In addition, nine buildings in Cedar Key had understructure damage, which included damaged utilities, breakaway walls, lost storage rooms and access stairways. Also, four buildings sustained storm surge flooding without visible structural damage from the flooding. In addition, armoring damage was sustained in Cedar Key, where 264 feet of composite seawall was destroyed (**Figure 44**) and 280 feet of rock revetment sustained major damage. Another 240 feet of living shoreline was destroyed at the east end of Cedar Key.



Figure 42. A motel building destroyed by the storm surge and waves, G Street, Cedar Key.



Figure 43. Wind damage in Cedar Key.



Figure 44. Composite seawall destroyed at Piney Point, Cedar Key.

Pinellas County

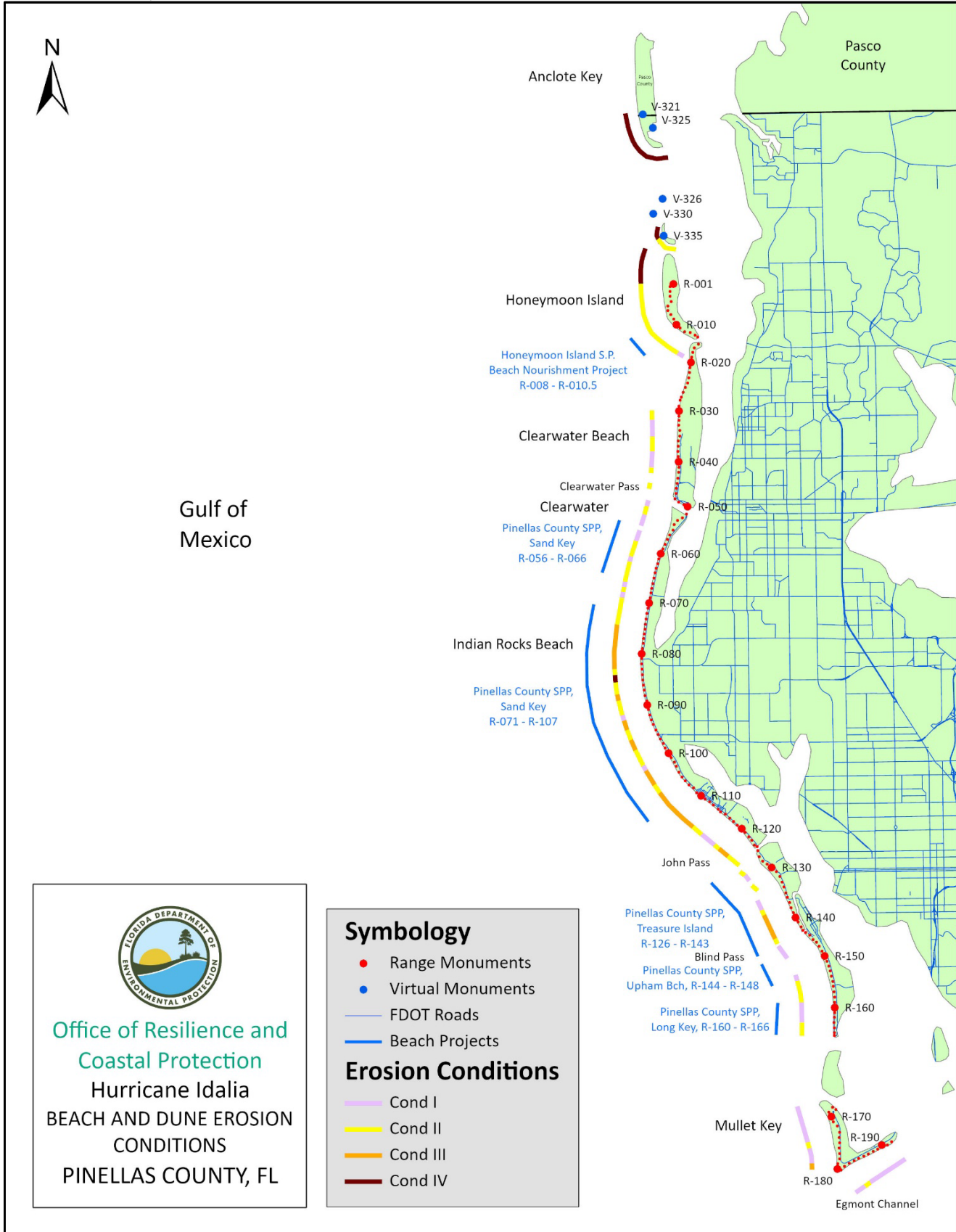


Figure 45. Pinellas County Beach and Dune Erosion Conditions from Hurricane Idalia.

Pinellas County

Pinellas County is located on Florida's southwestern coast fronting the Gulf of Mexico (**Figure 45**) and has 37.3 miles of beaches which extend from Anclote Key southward from the Pasco County line to Egmont Channel at the entrance to Tampa Bay in Hillsborough County. The coast of Pinellas County includes the southern end of Anclote Key, Three Rooker Bar, Honeymoon Island, Caladesi Island, Clearwater Beach, Sand Key, Treasure Island, Long Key, Shell Key and Mullet Key (Fort De Soto Park). Pinellas County has six inlets: Hurricane Pass, Clearwater Pass, John's Pass, Blind Pass, Pass-a-Grille, and Bunces Pass. Coastal Pinellas County includes the following beach communities: Clearwater Beach, Belleair Beach, Belleair Shore, Indian Rocks Beach, Indian Shores, Redington Shores, North Redington Beach, Redington Beach, Madeira Beach, Treasure Island and St. Pete Beach.

Storm Effects and Erosion Conditions

A strengthening Hurricane Idalia passed offshore from Pinellas County's beaches, which sustained 3.3 miles of major beach and dune erosion (condition IV) located in the northern segment of the county between Anclote Key and Honeymoon Island and at local sites on Sand Key, Treasure Island and Long Key (**Figures 46 through 54**). Most of the 6.0 miles of moderate beach and dune erosion (condition III) was observed on Sand Key. An additional 2,000 feet of moderate beach and dune erosion (condition III) was sustained on Treasure Island and another 1,000 feet was sustained on Mullet Key. There are an additional 12.9 miles of minor beach and dune erosion (condition II) and 9.9 miles of minor beach erosion (condition I) observed along the county's remaining beaches (**Table 1**).

A [physical monitoring report](#) with topographic and hydrographic surveys was developed for Pinellas County by APTIM, LLC. in October 2023 that illustrates the sand losses within Pinellas County. **Figures 48, 51 and 54** show beach profiles that illustrate some of the beach and dune erosion in Pinellas County.



Figure 46. Pre-Hurricane Idalia at the Fifty Gulfside Condominium in Indian Shores on Sand Key, R84 (photo courtesy of Zach Westfall of Pinellas County).



Figure 477. Post-Hurricane Idalia at the Fifty Gulfside Condominium in Indian Shores on Sand Key, R84 (photo courtesy of Zach Westfall of Pinellas County).

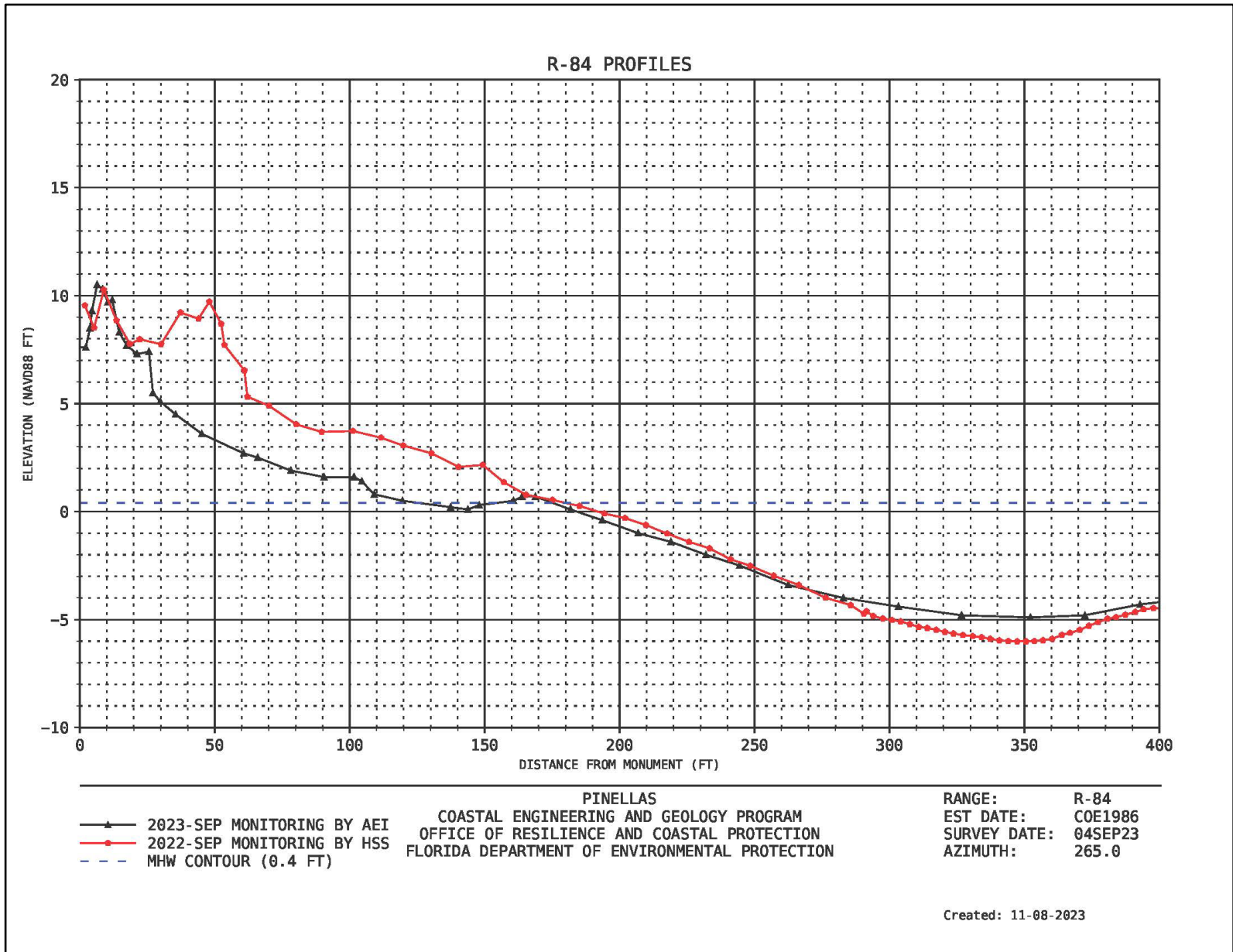


Figure 48. Beach profiles at R84 showing major beach and dune erosion (condition IV; data provided by APTIM, LLC.)



Figure 49. Sunset Beach on Treasure Island pre-Hurricane Idalia near R141 (photo courtesy of Zach Westfall with Pinellas County).



Figure 48. Sunset Beach on Treasure Island post-Hurricane Idalia near R141 (photo courtesy of Zach Westfall with Pinellas County).

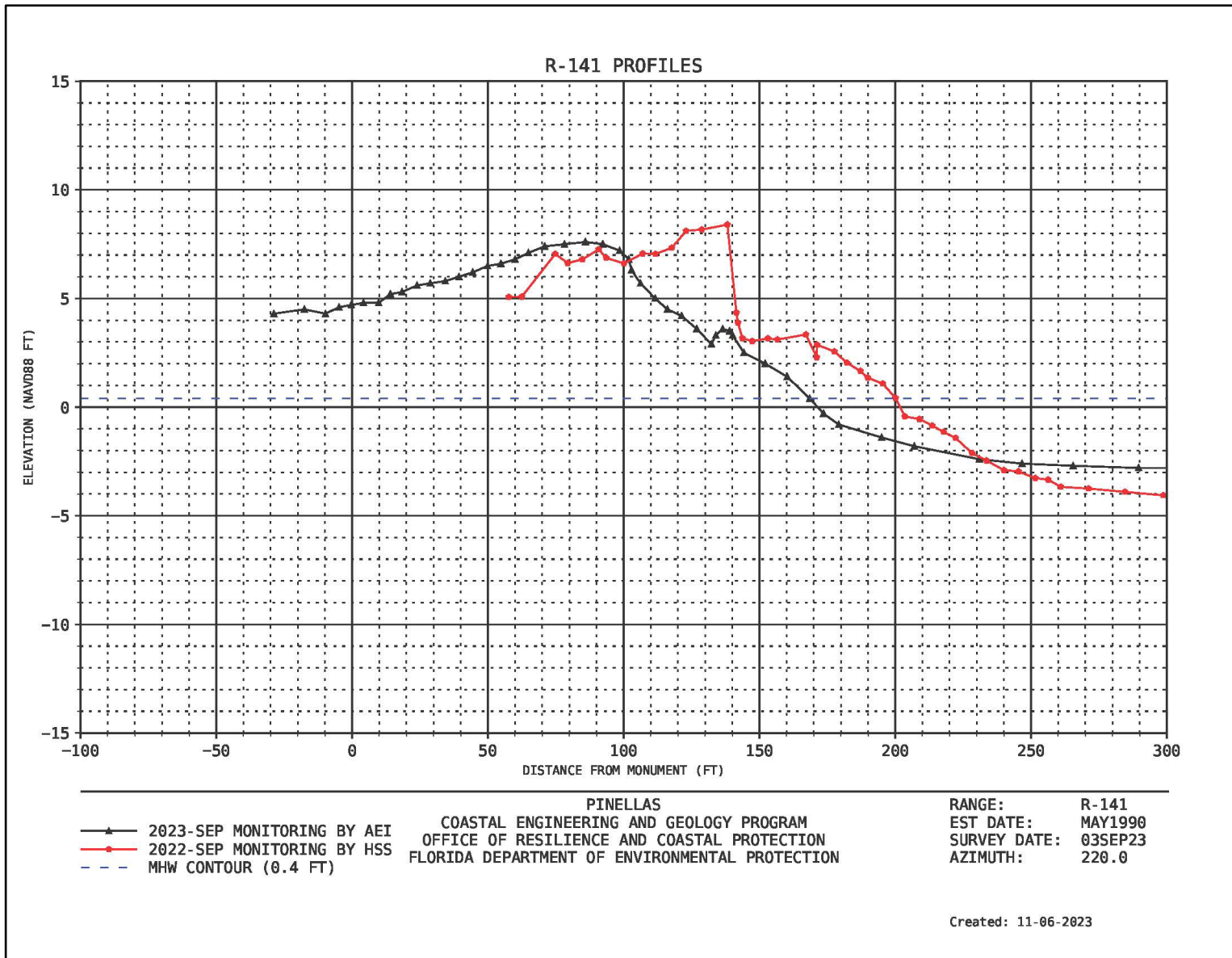


Figure 49. Beach profiles at R141 showing major beach and dune erosion (condition IV; data provided by APTIM, LLC.).



Figure 50. Pass-a-Grille Beach on Long Key pre-Hurricane Idalia near R164 (photo courtesy of Zach Westfall with Pinellas County).



Figure 51. Pass-a-Grille Beach on Long Key post-Hurricane Idalia near R164 with major erosion (condition IV; photo courtesy of Zach Westfall with Pinellas County).

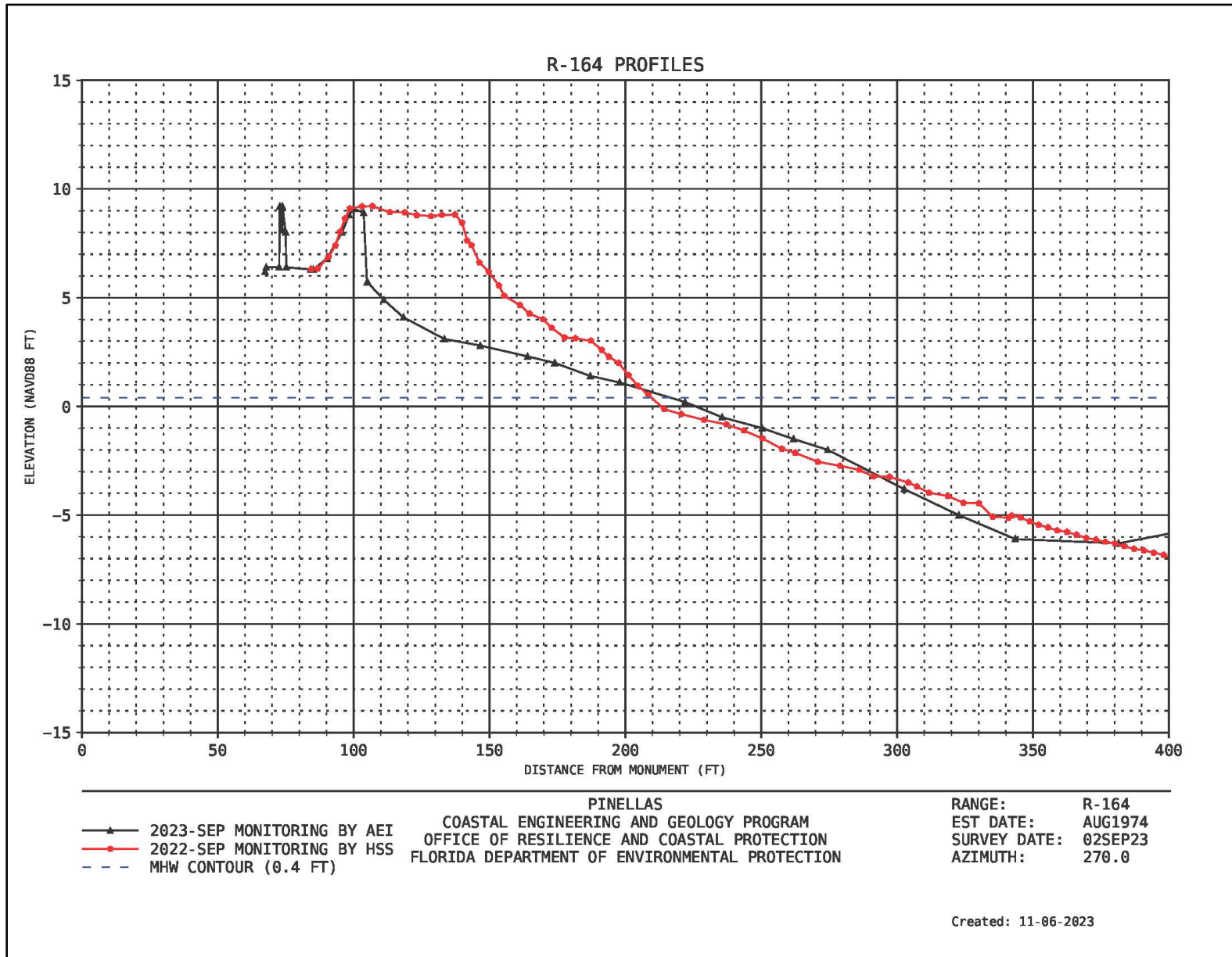


Figure 52. Beach profiles at R164 showing major beach and dune erosion (condition IV; data provided by APTIM, LLC.).

Storm Damage

The coastal communities in Pinellas County sustained major structural damage to only a few major structures due to the storm surge, waves and winds of Idalia. A total of three major structures were damaged that included one single-family dwelling with a portion of a metal roof destroyed, and two multifamily dwellings with major damage (**Table 3**). Additional storm damage occurred at the south jetty of John's Pass where the wave energy uplifted approximately 10 feet of the concrete walkway off the jetty rock mound (**Figures 55 and 56**).



Figure 55. Major damage to John's Pass south jetty (photo courtesy of Zach Westfall with Pinellas County).



Figure 53. Major damage to the John's Pass south jetty near R126 (photo courtesy of Zach Westfall with Pinellas County).

Manatee County

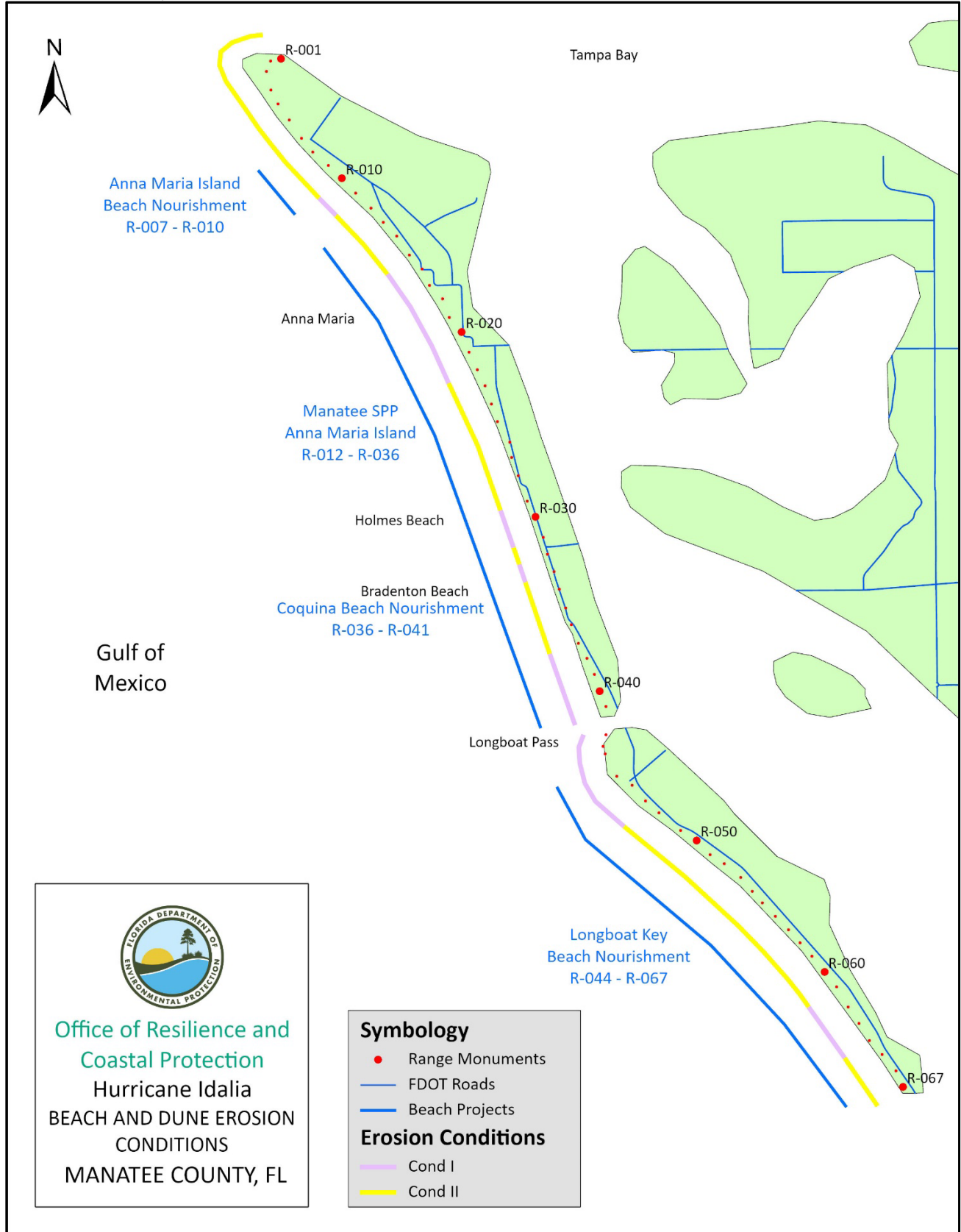


Figure 54. Manatee County Beach and Dune Erosion Conditions from Hurricane Idalia.

Manatee County

Manatee County is located on Florida’s southwest coast fronting the Gulf of Mexico (**Figure 57**) and has 12.6 miles of beaches which extend from the Southwest Channel southward from Hillsborough County to approximately halfway southward onto Longboat Key (R67) at the Sarasota County line. The coast of Manatee County includes Passage Key, Anna Maria Island and Longboat Key that includes Greer Island at the north end of Longboat Key. Manatee County has two inlets: Passage Key Inlet and Longboat Pass. Coastal Manatee County includes the following beach communities: City of Anna Maria, City of Bradenton Beach, and the Town of Longboat Key.

Storm Effects and Erosion Conditions

Manatee County’s beaches sustained 7.9 miles of minor beach and dune erosion (condition II) and 4.3 miles of minor beach erosion (condition I), as described in **Table 1**, and shown in **Figure 58** on Greer Island south of Longboat Pass.



Figure 55. Beach erosion and trees blown over by the winds of Idalia on Greer Island at the north end of Longboat Key near R42.

Coquina Beach (R33 to R41) at the south end of Anna Maria Island had approximately 74,800 cy of sand loss due to Hurricane Idalia. Additional information on the erosion that occurred within the Coquina Beach Nourishment Project boundaries can be seen in the [storm damage report](#) (APTIM, LLC and Coastal Protection Engineering, LLC, 2023).

Storm Damage

The offshore passage of Hurricane Idalia caused limited damage on the coast of Manatee County. Minor damage was observed within the Coastal Building Zone with only a couple of single-family dwellings with roofing damage (**Figure 59**).



Figure 56. Roofing damage on Anna Maria Island, near R25.

Sarasota County

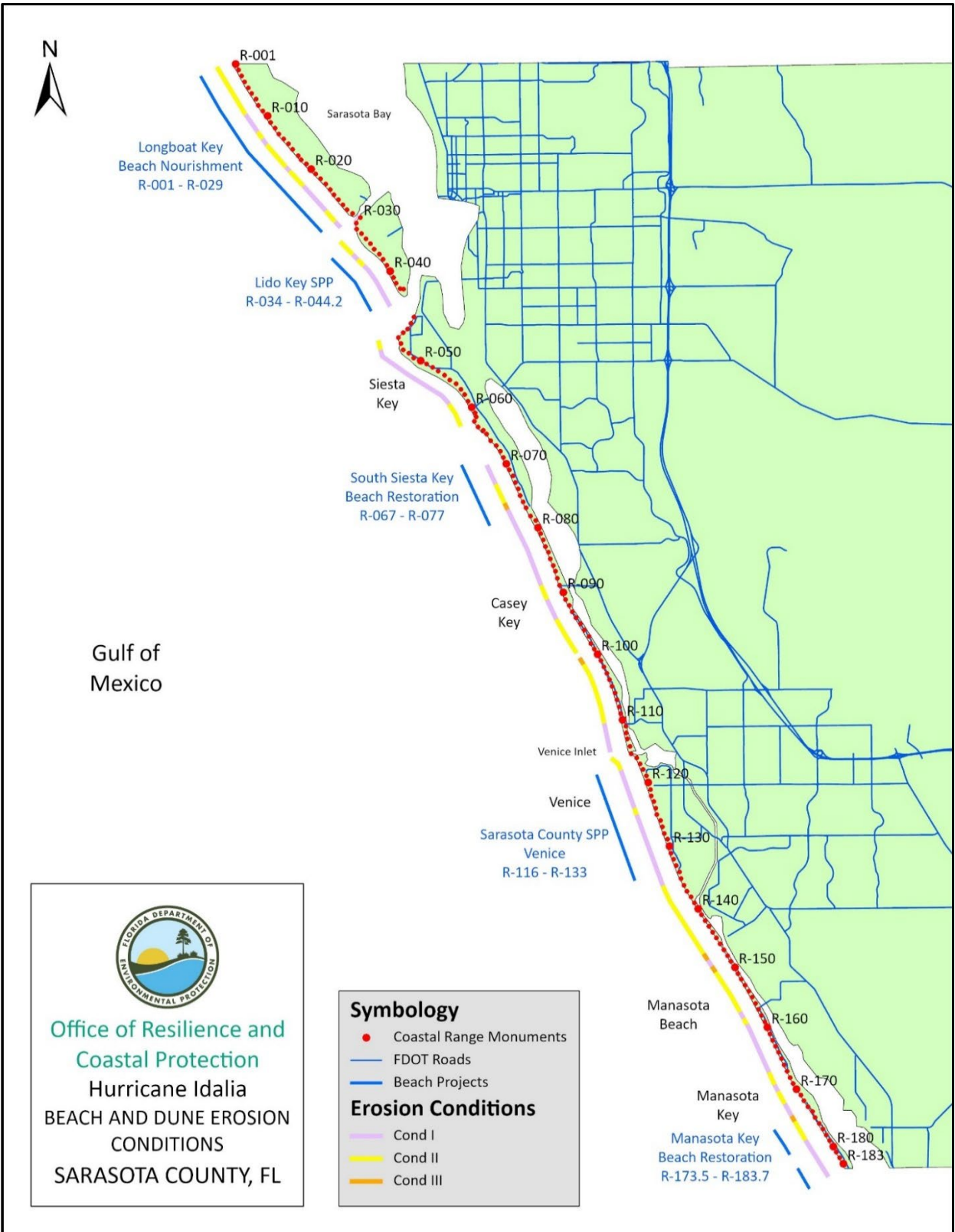


Figure 57. Sarasota County Beach and Dune Erosion Conditions from Hurricane Idalia.

Sarasota County

Sarasota County is located on Florida's southwest coast between Manatee and Charlotte Counties fronting the Gulf of Mexico (**Figure 60**) and has 34.7 miles of beaches which extend from the southern half of Longboat Key (R1) southward to Manasota Key (R183). The coast of Sarasota County includes Longboat Key, Lido Key, Siesta Key, Casey Key, Venice Beach, and Manasota Key. Sarasota County has three inlets: New Pass, Big Sarasota Pass and Venice Inlet. Coastal Sarasota County includes the following beach communities: Town of Longboat Key, City of Sarasota Beach, Siesta Key, Nokomis Beach, Venice Beach, and Manasota Key Beach.

Storm Effects and Erosion Conditions

Sarasota County's beaches sustained a 0.9 mile section of moderate beach and dune erosion (condition III), 14.7 miles of minor beach and dune erosion (condition II) and 17 miles of minor beach erosion (condition I), as described in **Table 1**. Additional information on the erosion that occurred within the Manasota Key Beach Restoration Project boundaries can be seen in the [third-year monitoring report](#) that includes pre-Hurricane Idalia survey data and post-Idalia survey data (Coastal Engineering Consultants, 2023). **Figure 61** shows moderate beach and dune erosion (condition III) at R174 just north of Blind Pass Park on Manasota Key.



Figure 58. Erosional losses demonstrated by the mark on the stairs of the dune walkover at Manasota Key, near R174, just north of Blind Pass Park.

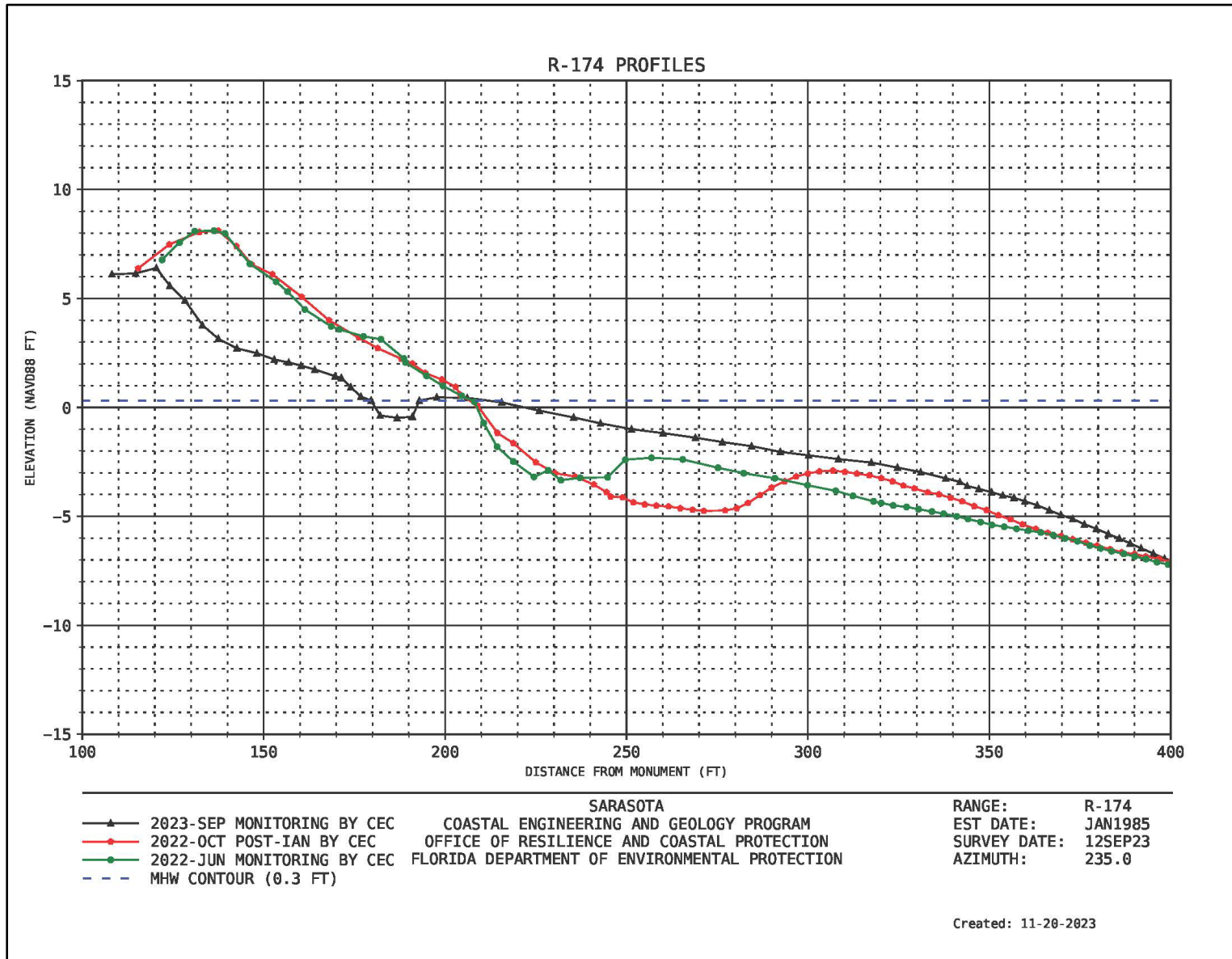


Figure 59. Beach profiles at Blind Pass Park, R174, showing moderate beach and dune erosion (condition III; data from Coastal Engineering Consultants Inc.,2023).

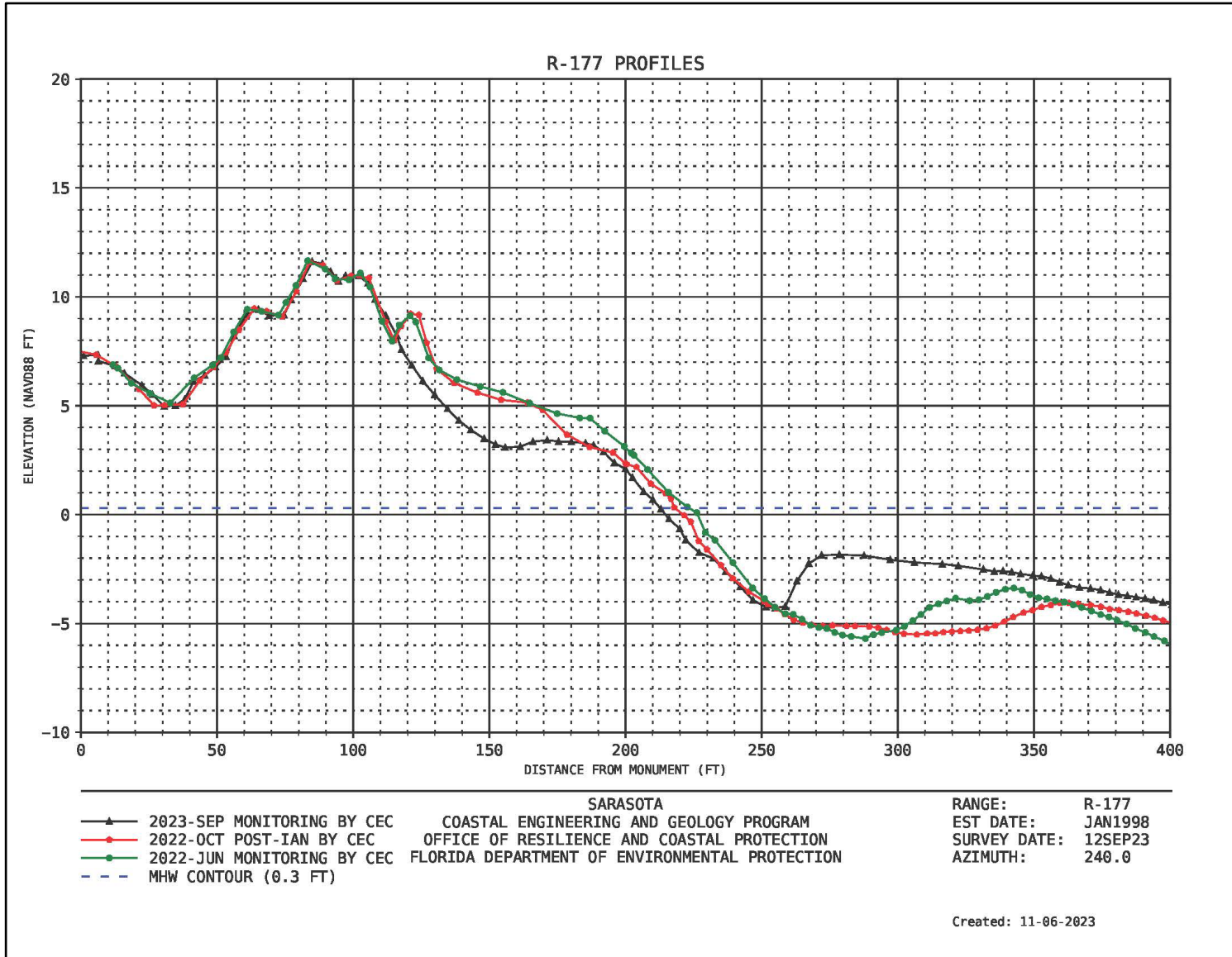


Figure 60. Beach profiles at Blind Pass Park, R177, showing minor beach and dune erosion (condition II; data from Coastal Engineering Consultants Inc., 2023).

Storm Damage

The offshore passage of Hurricane Idalia caused limited damage on the coast of Sarasota County. Although the wind was not significant, on Casey Key there was approximately 553 feet of road damage near R84 (**Figure 64**) and between R99 and R104. Geotextile sandbags were also damaged and became exposed due to the wave energy from Idalia (**Figure 65**). In addition, the south jetty at Venice Inlet (R115) sustained major damage from the storm tides and waves (**Figure 66** and **Figure 67**). Further south, storm tides and waves caused 633 feet of major damage to Manasota Key Road and 345 feet of major revetment damage north of the Blind Pass Park near R175 (**Figure 68**).

Additional flooding occurred on St. Armands Key due to the storm surge combined with a perigeon spring tide causing approximately one to three feet of standing water, which overwhelmed the island's active drainage system. Several businesses and homes experienced six to 12 inches of flooding inside the affected buildings.



Figure 61. Damage to road on Casey Key, near R84.5.



Figure 62. Moderate beach and dune erosion (condition III) damaged geotextile sandbags on Casey Key near R100.



Figure 63. Damage to the south jetty at Venice Inlet, R115.



Figure 64. Damage to the south jetty at Venice Inlet, R115.



Figure 65. Major damage to Manasota Key Road at R175 north of Blind Pass Park (photo courtesy of Vadim Alymov with Coastal Engineering Consultants Inc.).

Charlotte County

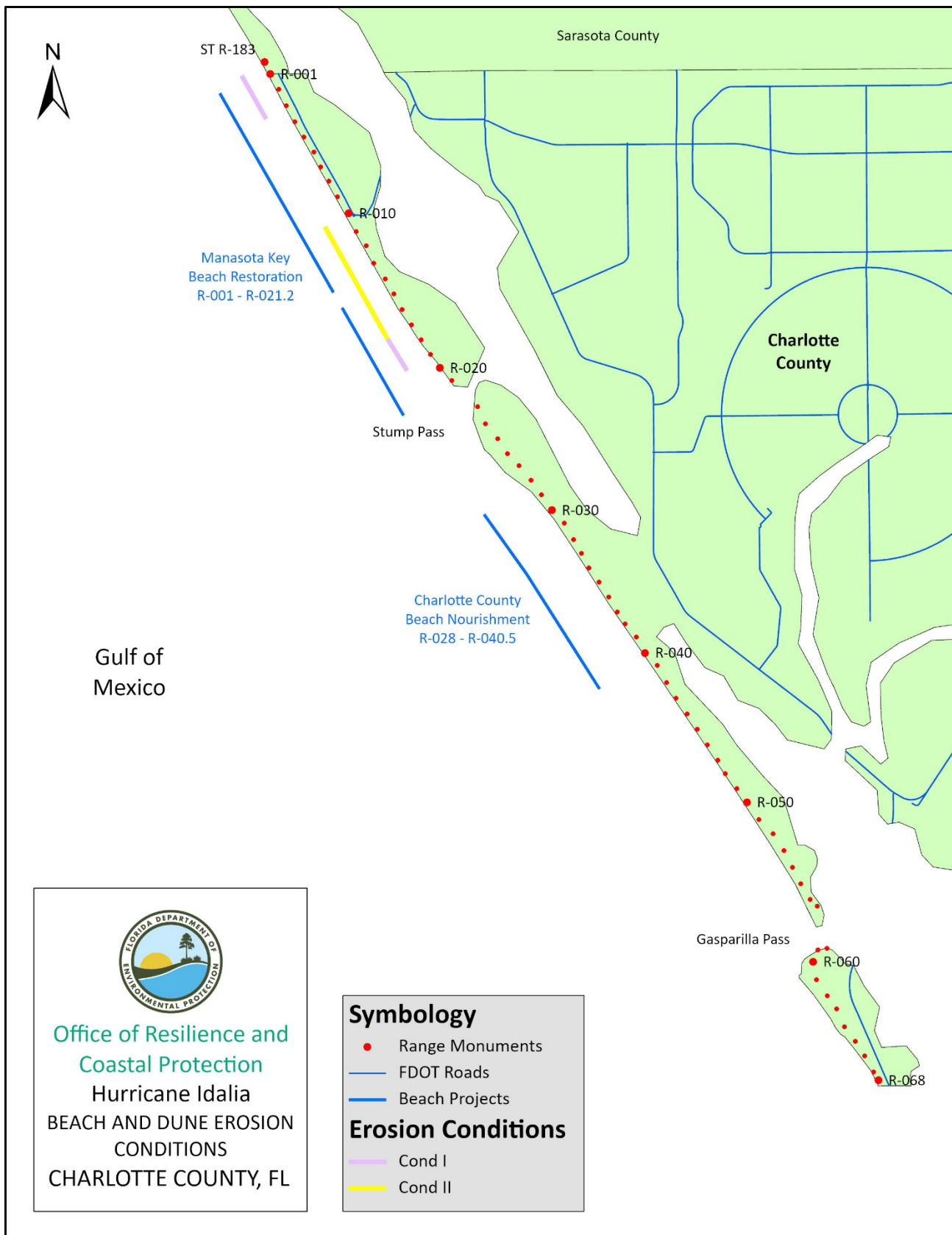


Figure 66. Charlotte County Beach and Dune Erosion Conditions from Hurricane Idalia.

Charlotte County

Charlotte County is located on Florida's southwest coast between Sarasota and Lee Counties fronting the Gulf of Mexico (**Figure 69**) and has 12.4 miles of beaches which extend from the southern third of Manasota Key southward to northern Gasparilla Island. The coast of Charlotte County includes Manasota Key, Don Pedro Island/ Knight Island/ Little Gasparilla Island, and the northern end of Gasparilla Island. Charlotte County has two inlets: Stump Pass and Gasparilla Pass. Coastal Charlotte County includes the beach community of Englewood Beach.

Storm Effects and Erosion Conditions

With the passage of Hurricane Idalia well offshore, Charlotte County's beaches only sustained 1.4 miles of minor beach and dune erosion (condition II), and a 0.9 mile section of minor beach erosion (condition I), as described in **Table 1** and illustrated in **Figures 70** through **72**. Additional information on the erosion that occurred within the Manasota Key Beach Restoration Project boundaries can be viewed in the [third-year monitoring report](#) that includes pre-Hurricane Idalia survey data and post-Idalia survey data (Coastal Engineering Consultants, Inc., 2023). **Figures 70** through **72** show typical conditions of minor beach and dune erosion (condition II).

Storm Damage

The offshore passage of Hurricane Idalia caused limited damage on the coast of Charlotte County. The department staff only performed damage assessments on Manasota Key down to Stump Pass and did not observe any major structural damage to major structures. No major damage to major structures was reported from Charlotte, Lee or Collier Counties.



Figure 67. Beach and dune erosion on Manasota Key at R14.5 (photo courtesy of Vadim Alymov with Coastal Engineering Consultants, Inc.).



Figure 68. Beach and dune erosion on Manasota Key at R15 (photo courtesy of Vadim Alymov with Coastal Engineering Consultants, Inc.).

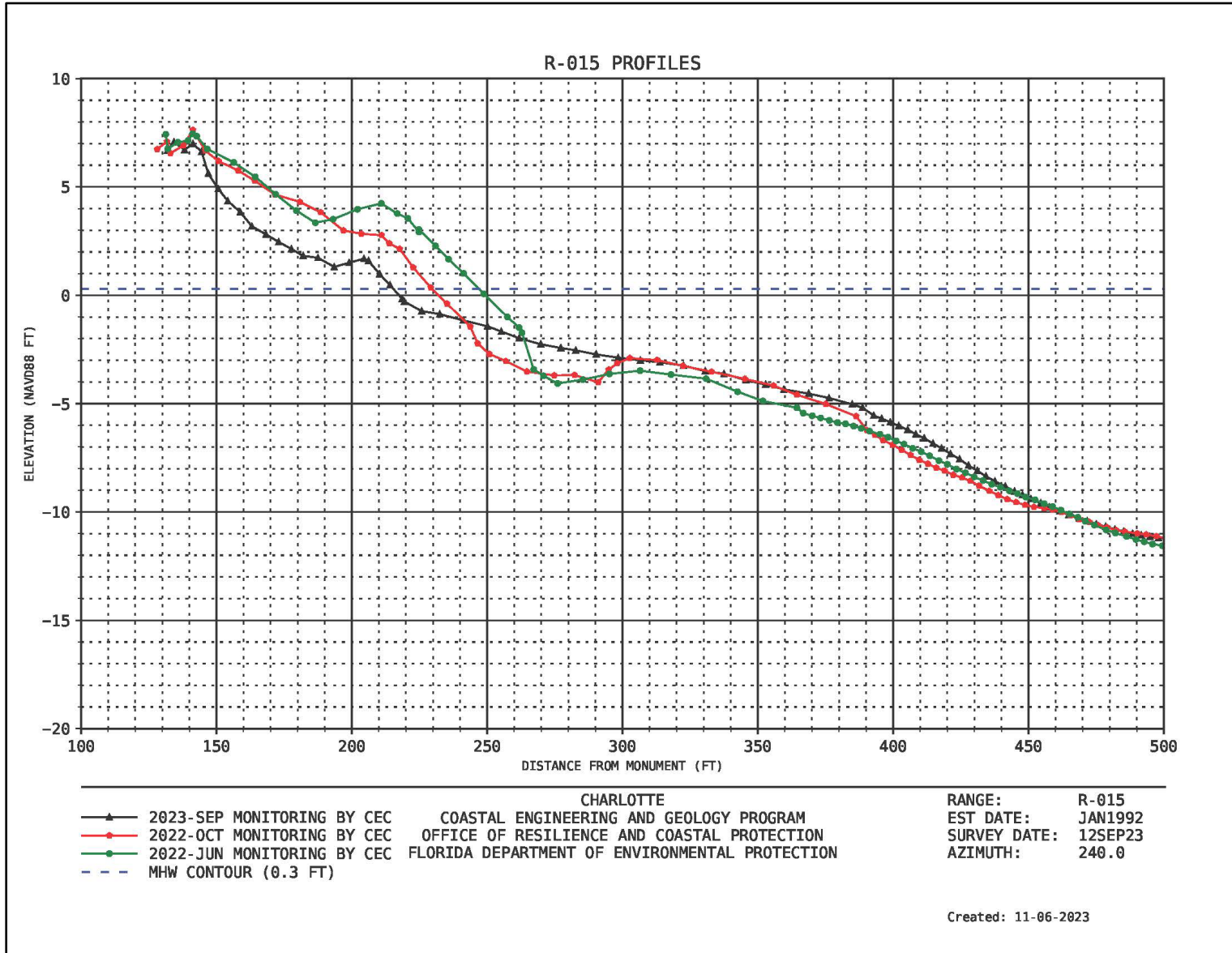


Figure 69. Beach profiles on Manasota Key at R15 showing minor beach and dune erosion (condition II; data from Coastal Engineering Consultants, Inc.).

VI. References

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