

Indian River County Post Hurricanes Ian and Nicole Sector 4 Beach Status

Public Works Department
Coastal Engineering Division

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Hurricanes Ian and Nicole



Hurricane Ian's Path

(Source: The Weather Channel)



Hurricane Nicole's Path

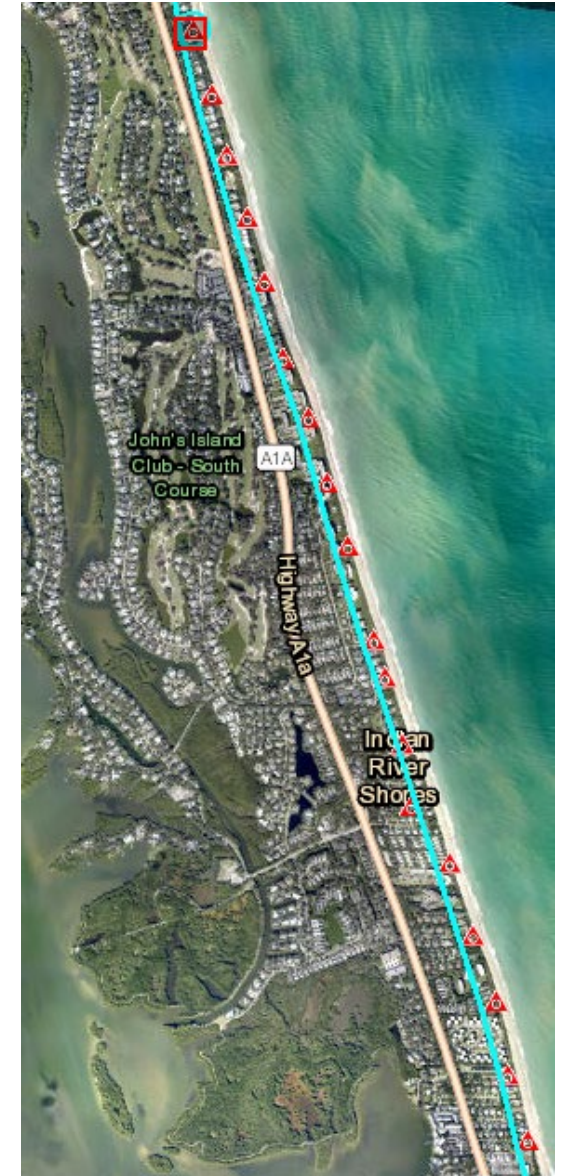
(Source: Weather Underground)

Much of Indian River County's 22.4 miles of beaches sustained appreciable erosion to the beach berm and dunes as a result of impacts from these storms.



Sector 4

- Sector 4 represents approximately 3.2 miles of shoreline from FDEP Range Monument R55 to R72
- Sector 4 is not an engineered beach
- Sector 4 has not been classified as a Critically Eroded Beach by the FDEP's Office of Resilience and Coastal Protection





Sector 4

- The department (FDEP), pursuant to rule 62B-36.002(5), Florida Administrative Code (F.A.C.), defines “critically eroded shoreline” as, *“a segment of the shoreline where natural processes or human activity have caused or contributed to erosion and recession of the beach or dune system to such a degree that upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost. Critically eroded shorelines may also include peripheral segments or gaps between identified critically eroded areas which, although they may be stable or slightly erosional now, their inclusion is necessary for continuity of management of the coastal system or for the design integrity of adjacent beach management projects.”*



Sector 4

- To determine whether a segment of shoreline is critically eroded, the FDEP investigates an area of concern and employs both qualitative assessments and quantitative data and analyses.
- When data is limited at the time of an investigation, FDEP staff utilizes professional engineering judgment based upon reasonably accepted standards and practices in evaluating the erosion condition of a shoreline.
- Subsequently, when pertinent new data is obtained, the department updates the analysis.



Sector 4

The types of quantitative data and analyses considered includes, but is not limited to:

- beach and offshore profiles
- upland topography
- nearshore and offshore bathymetry
- historical shoreline position changes
- storm tide frequency
- beach and dune erosion
- recent storm damage
- design adequacy of upland development
- and proximity of development, infrastructure, wildlife habitat and important cultural resources to the effects of a 25-year frequency storm event.



Sector 4

- Indian River County has, on multiple occasions, requested that the FDEP consider Sector 4 as a Critically Eroded Beach



Sector 4 – CEA Requests

- February 2018 FDEP response was that Sector 4 shoreline was not critically eroded per the definition of the program
- January 2021 FDEP response was that the modeling studies indicated that upland development is not presently threatened by the estimated storm erosion, and hence, does not lead to a designation of critically eroded beach
- December 2022 FDEP response was that the Office of Resilience and Coastal Protection's Coastal Engineering and Geology group is 'compiling and reviewing the pre- and post-storm beach topographic data in preparation of a report to re-evaluate beaches for determining critically eroded designations.'



Sector 4

Obstacles to future potential sand placement repair efforts within Sector 4

- Easements – these needed prior to the County performing any activity on private property
- Funding – County staff continue to work with FEMA and the FDEP in order to determine availability of funding (Federal and/or State)



Sector 4 - Obstacles continued

- Beach access – Only public access within Sector 4 is Beachcomber Lane access
- Sand – availability of sand
- Regardless of a Critically Eroded Beach designation, Sector 4 beach is not an Engineered beach, and therefore not eligible for FEMA Category G funding.



Sector 4

Funding

- Even if Sector 4 gets classified as a Critically Eroded Beach, the entire stretch of Sector 4 would not be eligible for FDEP Cost-Share funding due to the limited Public Access (only Beachcomber Lane would qualify as a Public Access).
- FEMA may determine that Sector 4 is not eligible for even Emergency Category B funding due to the remaining dune not being susceptible to a 5 year storm event per FEMA guidelines*

* Draft Sector 4 Storm Damage Report: Hurricanes Ian & Nicole, APTIM



Sector 4

Summary

- During the storm inter-survey period, the Sector 4 beach experienced an average dune retreat of -19.2 ft and a loss of sand above Mean High Water of 50,200 cubic yards (cy).
- Portions of immediate beachfront infrastructure were observed to be in a vulnerable state following the passage of the storms.



Sector 4 - Summary continued

- Although a significant loss of sand due to the dune erosion was measured, hydrographic surveys performed after Hurricane Nicole showed an average shoreline gain of 9.9 ft and a beach volume gain of 800 cy above the depth of closure.
- It is unlikely that the Dune will recover to pre-storm conditions based on the normal wave climate of the area.



Sector 4 - Summary continued

- The estimated cost to repair the dune damages from the 2022 hurricane season to the Sector coastline is \$5,093,666.71

Questions

