

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



**Questions & Answers for Range or Reference (R) Survey Monuments:**



1.) Question: What is a R monument?

Answer: Also called a Department Range Monument or Reference Monument, R monuments are coastal survey markers. They mark key survey points along Florida's sandy coastline.

2.) Question: Why are the R monuments along Florida's coastline?

Answer: The R monuments are utilized by Land Surveyors and Coastal Engineers to measure the beach topography for determining erosional or accretional trends and to coordinate mapping of beach restoration project boundaries or the project's performance. They are also utilized by local, state and federal officials for similar mapping purposes. See Florida's [Beach and Shore Preservation Act](#) and [Coastal Mapping Act](#) for additional information.

Question: Who installed the survey monuments?

Answer: The University of Florida through contracts with the Department of Natural Resources (DNR) the Division of Beaches and Shores, which is currently the Department of Environmental Protection (DEP) the Office of Resilience and Coastal Protection's [Beach Programs](#) and surveying staff.

3.) Question: Where are the R monuments located?

Answer: The R monuments are located at approximately 1,000-foot intervals along Florida's sandy coastline, with a few exceptions. The R monuments are not located in the Florida Keys (Monroe County), Eglin Air Force Base (Santa Rosa and Okaloosa Counties), portions of Shell Island and Crooked Island (Bay County), Saint Vincent Island (Franklin County) the pocket beaches from Wakulla through Pasco Counties, the Canaveral National Seashore/ Kennedy Space Center (Brevard County), the Kice Island, Cape Romano or Ten Thousand Islands (Collier County). Also, for the portions of Florida's shoreline listed above that have no physical R monuments, the Department uses a virtual position (V) that can be seen in the map direct tool on the Department's web page with V-330 as an example.

4.) Question: When were the R monuments installed?

Answer: The R monuments were installed in the early 1970's.

5.) Question: What do R monuments look like?

Answer: The 1970's version was a 4"x 4" X 4' concrete monument (Figure 1) with a DNR brass disk on top. Some of the newer R monuments are made of a plastic Bernstein pipe with a DEP brass disk set on top. Some of the R monuments will have a witness post adjacent to the monument that is either a metal or fiberglass post with signage that indicates a survey marker is nearby, generally within 1 to 5 feet of the witness post. See Figure 2, Figure 3, and Figure 4 for additional photos of the R monuments. Profile graphs from survey data collected after hurricanes by Real-Time Kinematic (RTK) Global Positioning Systems (GPS) or LiDAR can be seen in Figure 5, Figure 6, Figure 7, Figure 8 or Figure 9.

6.) Question: Where can I find the beach erosion survey data that has been collected over the years.

Answer: Historic beach erosion survey data can be found in the Department's [historic shoreline database](#). The beach survey data has been repeatedly collected along a prescribed profile bearing. See an example of a physical monitoring [survey report](#).

7.) Question: What happens if a R monument is destroyed (naturally or intentionally)?

Answer: Although fine or imprisonment for intentional destruction is possible, that usually does not happen. Occasionally, R monuments are dislodged as a result of a storm, beach erosion or new development. In the past, the Department would replace the Range monuments, but with the advancement of the GPS surveying tool, the Department no longer replaces the R monuments.

8.) Question: Do the R monuments have coordinates and elevations?

Answer: Yes, this information can be found in the historic shoreline database in the profile survey data files. *Positions may have shifted over time, this information is to be used at one's own risk.*

9.) Question: Does the Department utilize the [state plane coordinate system](#) with the R monument coordinate values?

Answer: Yes, the coordinate values given out to the public are in the Northing (Y), Easting (X) and Elevation (Z) U.S. Survey feet format in the Florida State Plane System of Coordinates. These coordinates can be found in the historic shoreline database.

10.) Question: Can the R monuments be seen in the Department's aerial photomaps or geographic information system (GIS) layer?

Answer: Yes, although the R monuments are not actually visible in the photographs, the Department has the interactive [map direct](#) that shows the R monuments approximate location on current aerial photography and depicted as small red triangles and they can also be seen in the Department's [GIS layers](#), [geospatial data](#) or [LABINS](#). The virtual monuments are depicted as small blue triangles.



**Figure 1.** Range survey monument R-32 on Perdido Key in Escambia County, Fl.



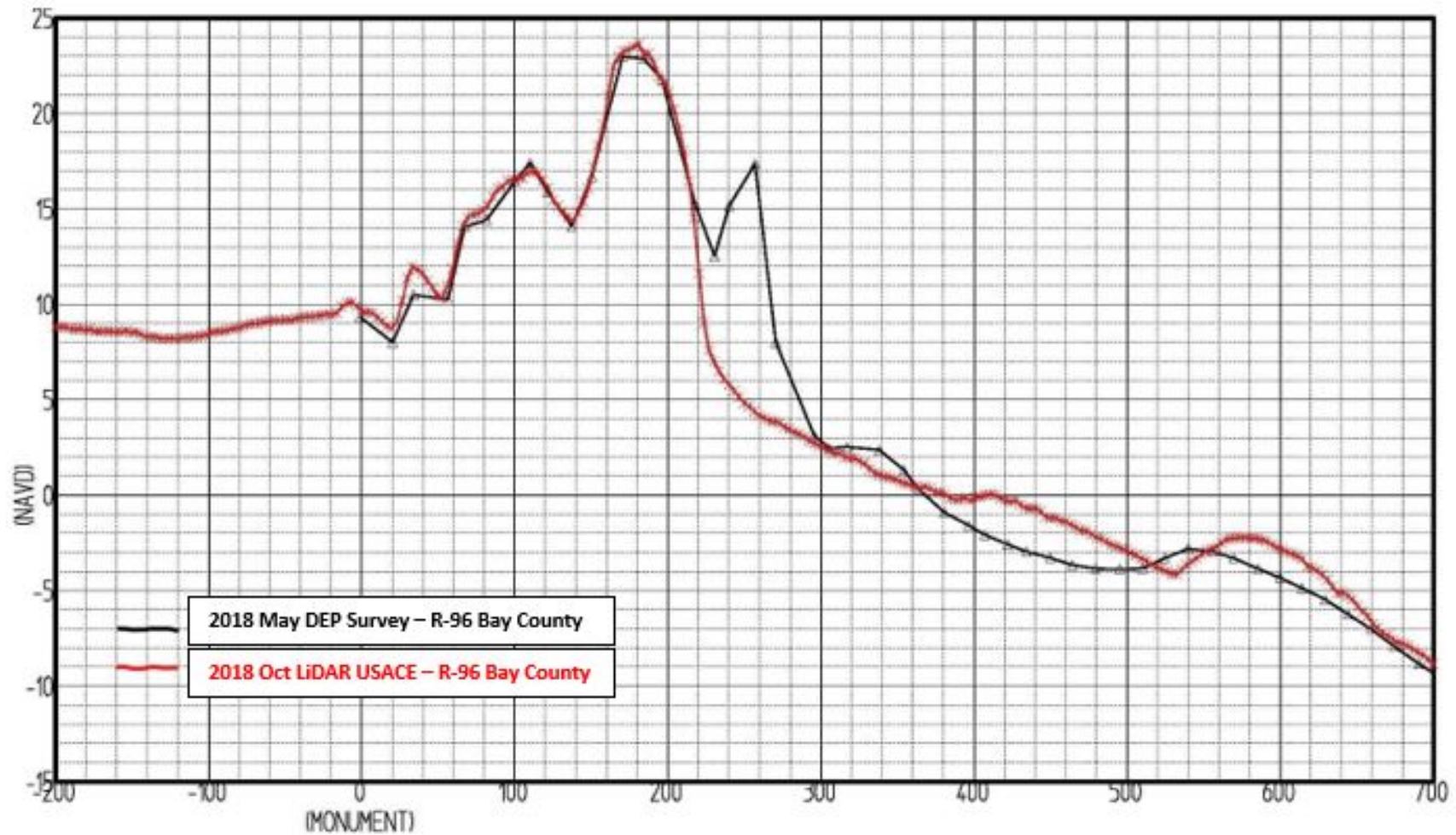
**Figure 2.** Range survey monument R-137, Treasure Island in Pinellas County, Fl.



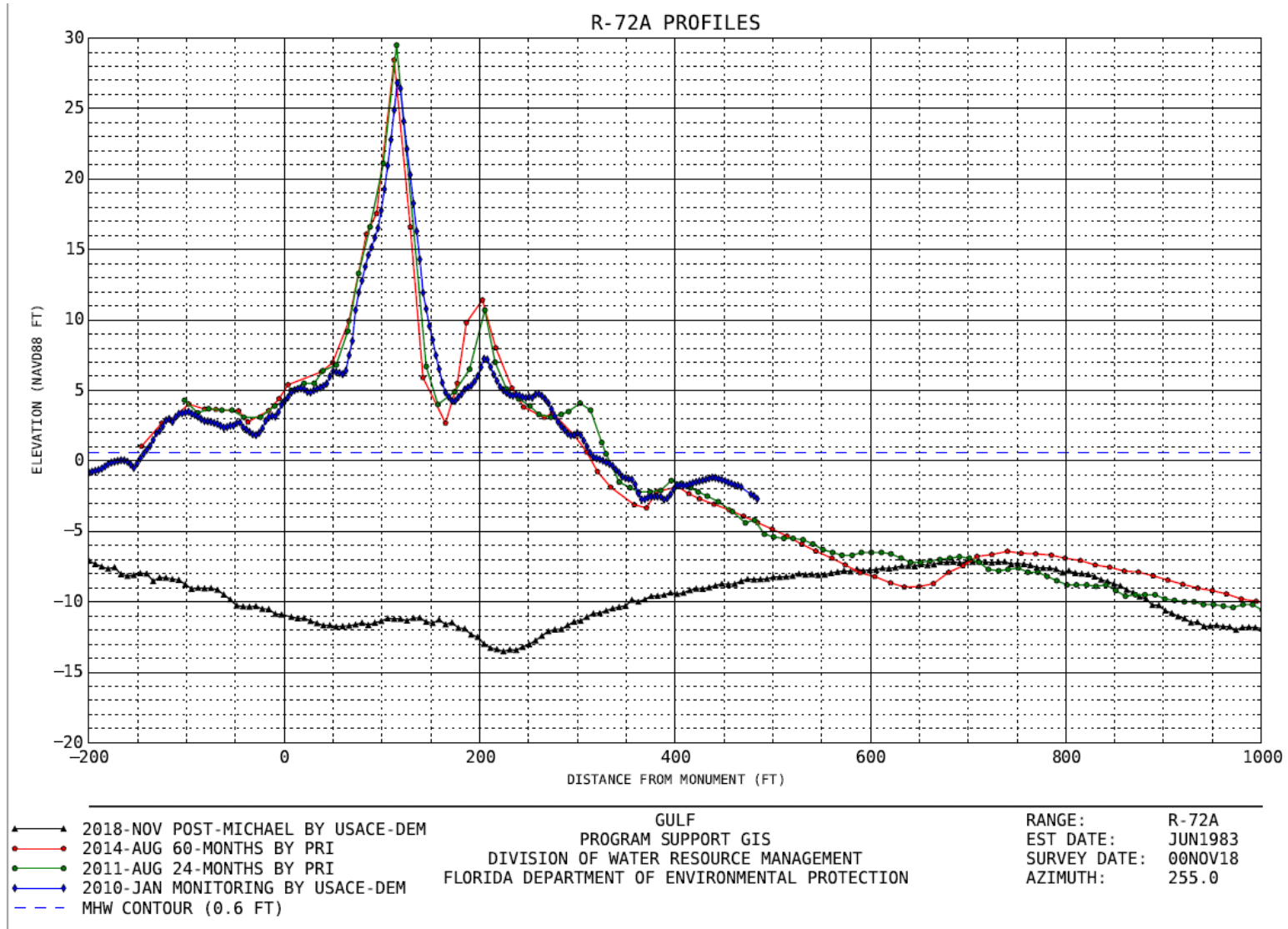
**Figure 3.** Range survey monument R-22 in Malacompra Park in Flagler County, Fl.



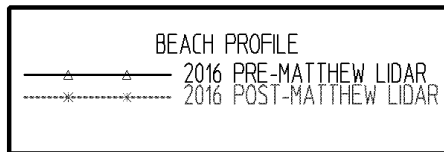
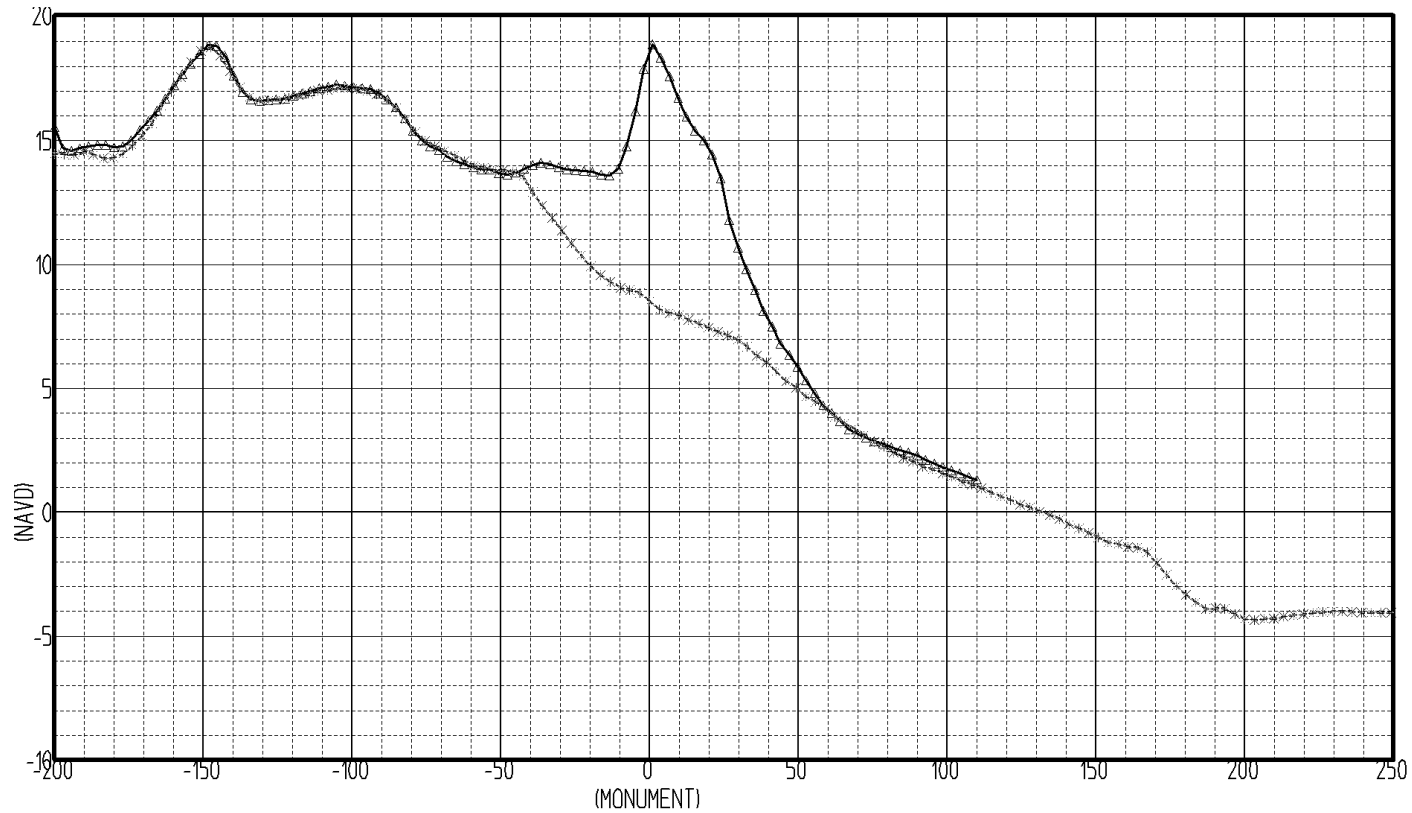
**Figure 4.** Range survey monument R-3 on Anna Maria Island in Manatee County, Fl.



**Figure 5.** Pre-storm and post-storm profile comparison of major dune erosion in St. Andrews State Park in Bay County at R96 due to [Hurricane Michael](#) (2018).



**Figure 6.** Pre-storm and post-storm profile comparison at the site of the breach across St. Joseph Peninsula in Gulf County at R72 due to Hurricane Michael (2018).



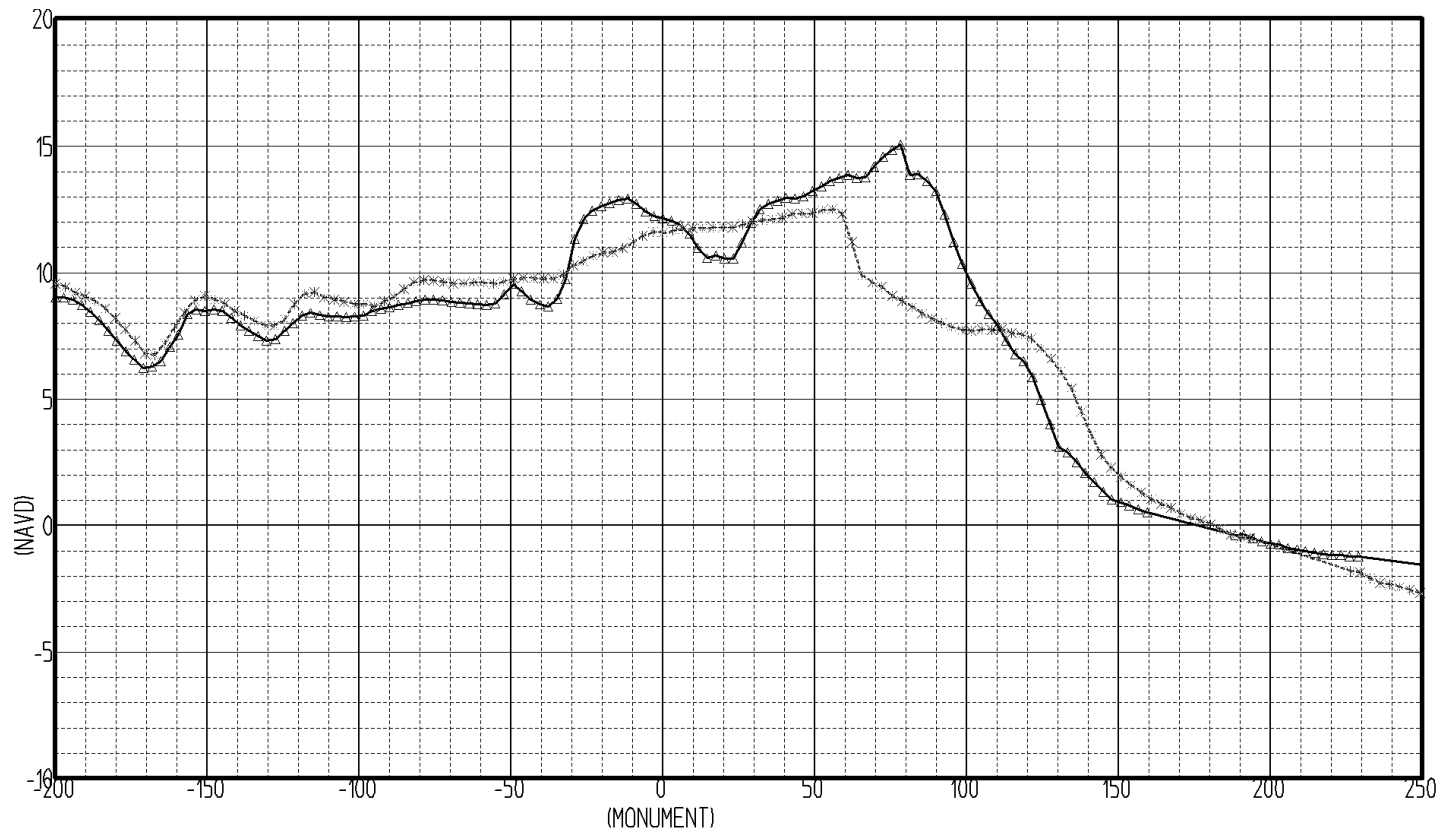
ST JOHNS COUNTY  
 Division of Water Resource Management  
 FL Dept. of Environmental Protection

Range: R-087	1/3
Mon. Est:	JUN1972
DOT DATE:	
BEACH DATE:	00JUN16
OFFSHORE DATE:	

05-25-17

**Figure 7.** Pre-storm and post-storm profile comparison of DEP R Monument R87 in St. Johns County of erosion due to [Hurricane Matthew](#) (2016).





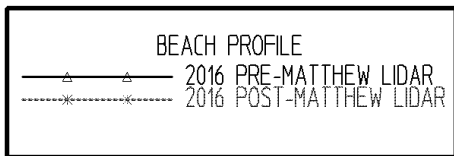
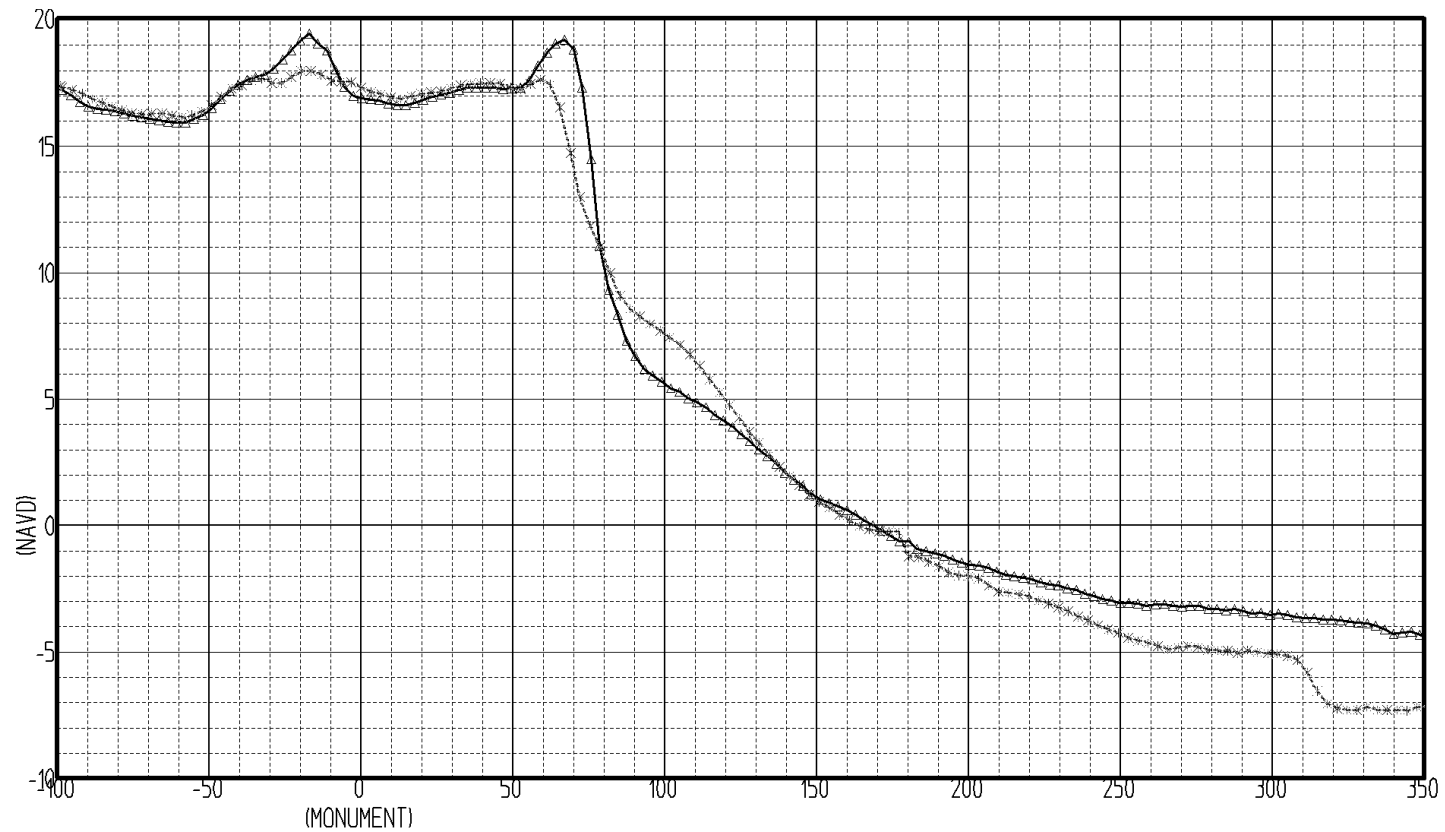
BEACH PROFILE  
 —△—△— 2016 PRE-MATTHEW LIDAR  
 - - - \* - - - 2016 POST-MATTHEW LIDAR

FLAGLER COUNTY  
 Division of Water Resource Management  
 FL Dept. of Environmental Protection

Range: R-008 1/4  
 Mon Est: MAY1972  
 DOT DATE:  
 BEACH DATE: 00JUN16  
 OFFSHORE DATE:

05-31-17

**Figure 8.** Pre-storm and post-storm profile comparison of DEP R Monument R8 in Flagler County of erosion due to Hurricane Matthew (2016).



FLAGLER COUNTY  
 Division of Water Resource Management  
 FL Dept. of Environmental Protection

Range: R-085	1/3
Mon. Est:	MMM1999
DOT DATE:	
BEACH DATE:	00JUN16
OFFSHORE DATE:	

06-07-17

**Figure 9.** Pre-storm and post-storm profile comparison of DEP R Monument R85 in Flagler County of erosion due to Hurricane Matthew (2016).