



# Isle of Palms Shoal Management Project

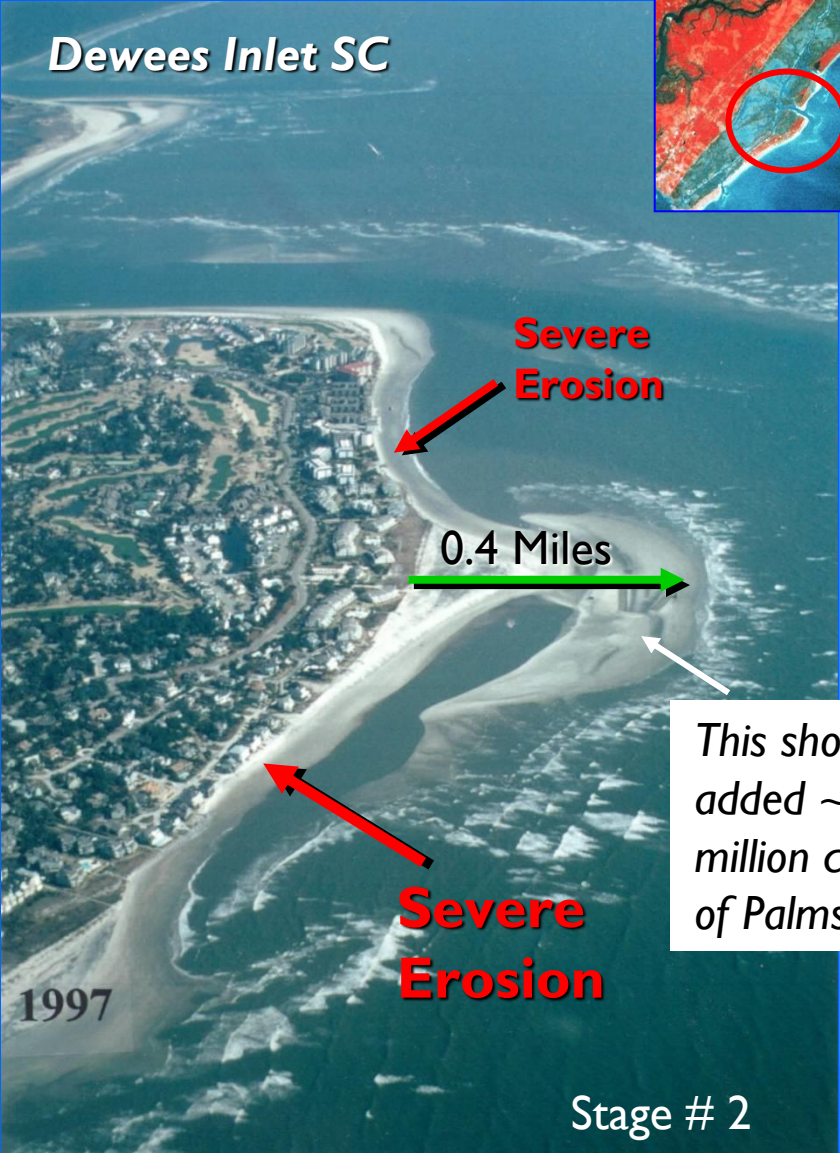


# Coastal Processes

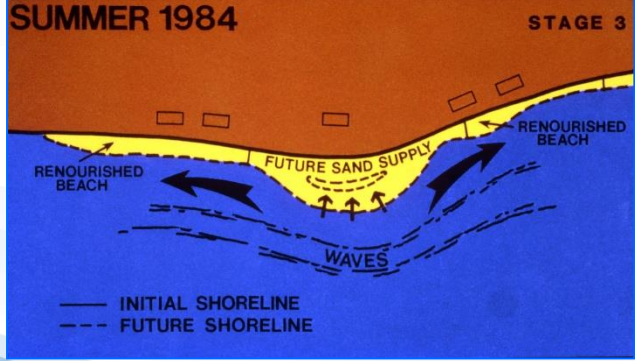
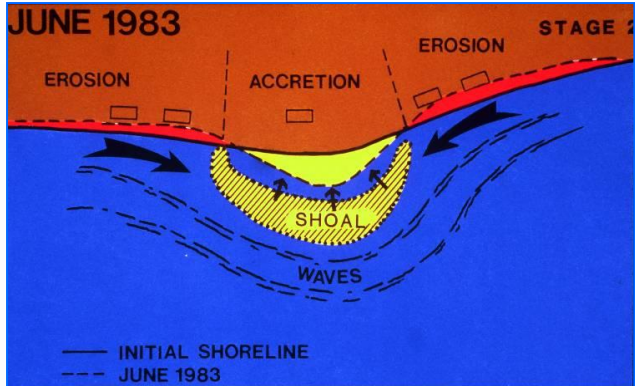
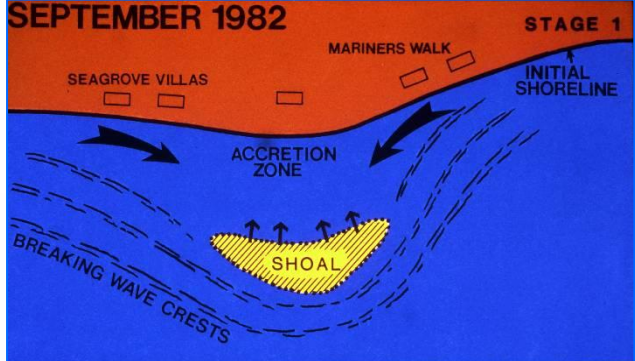
- Inlet-Dominated
- Sand from north end moves south over time
- Sand “packages” as shoals attach or nourishment is added
- In recent years, erosion has outpaced shoal attachments



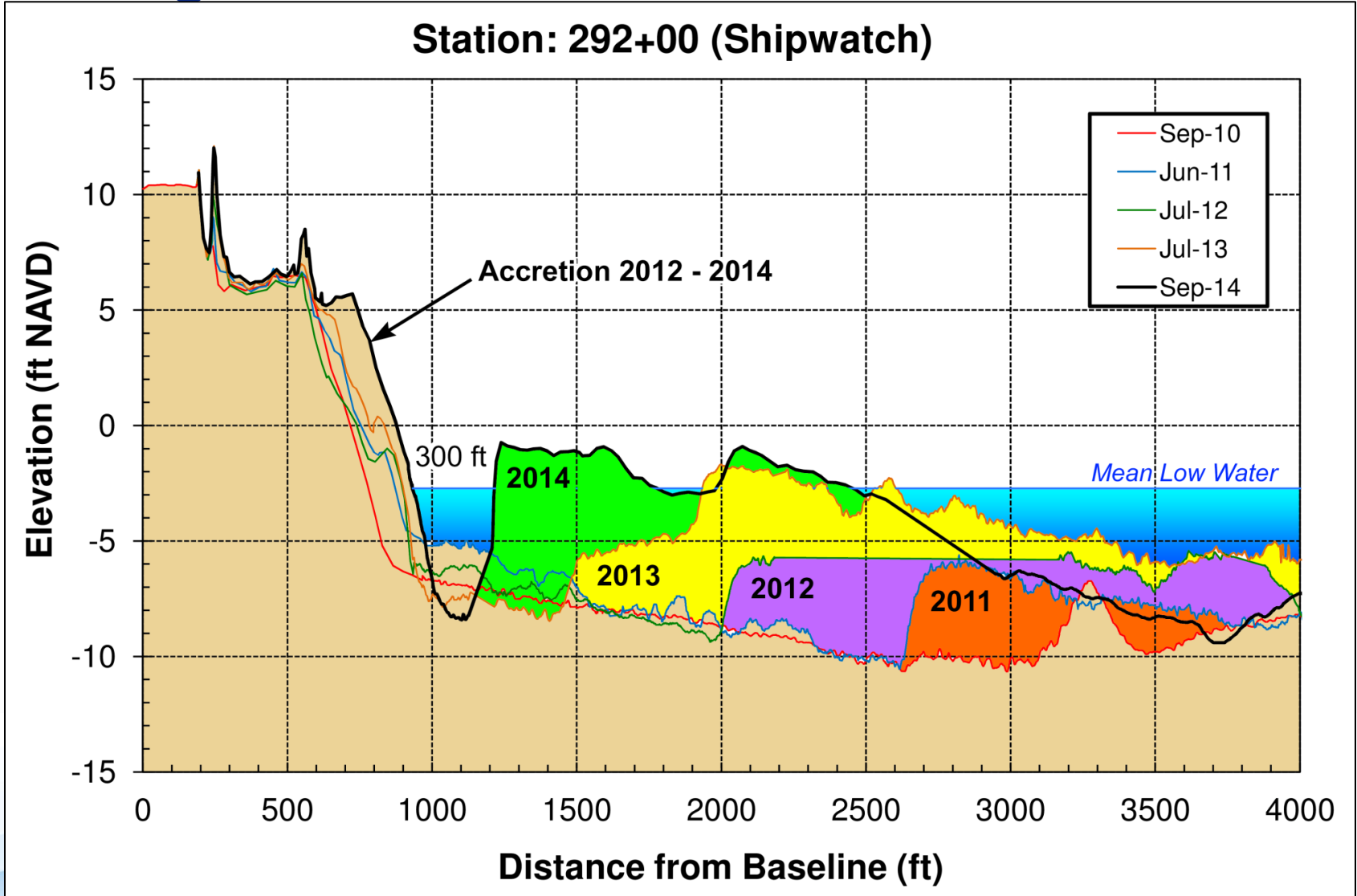
# Shoal Bypassing



*This shoal added ~0.5 million cy to Isle of Palms*



# Shoal Migration



# Beach Condition History



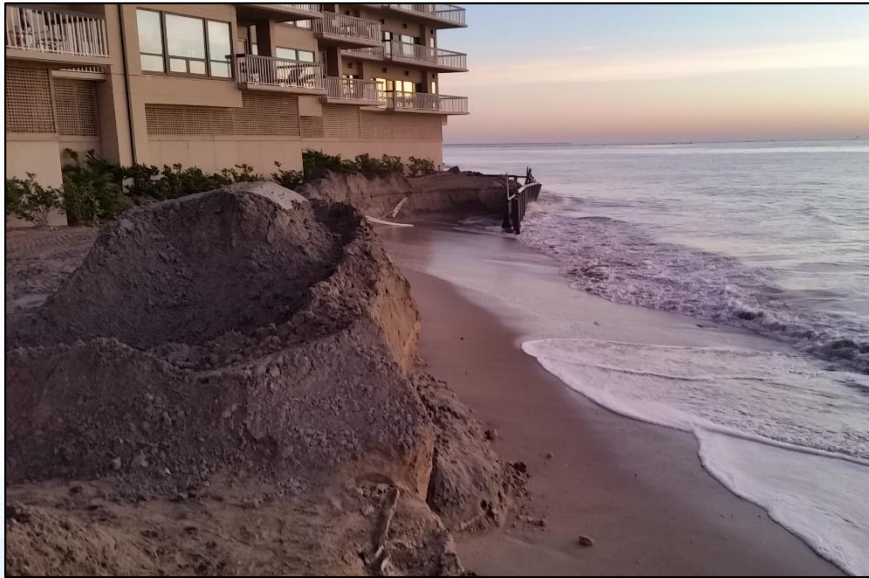
# Project History

- 1983 – Nourishment from marina dredging
- 1980's-1990's periodic scraping from shoals
- 2008 – Nourishment ~900,000 cy via offshore dredge (\$10 mil)
- 2012 – 80,000 cy scraping (\$245k)
- 2014-2015 – 240,000 cy scraping (\$800k)
- 2018 – Nourishment ~1.67 million cy (\$15 mil)



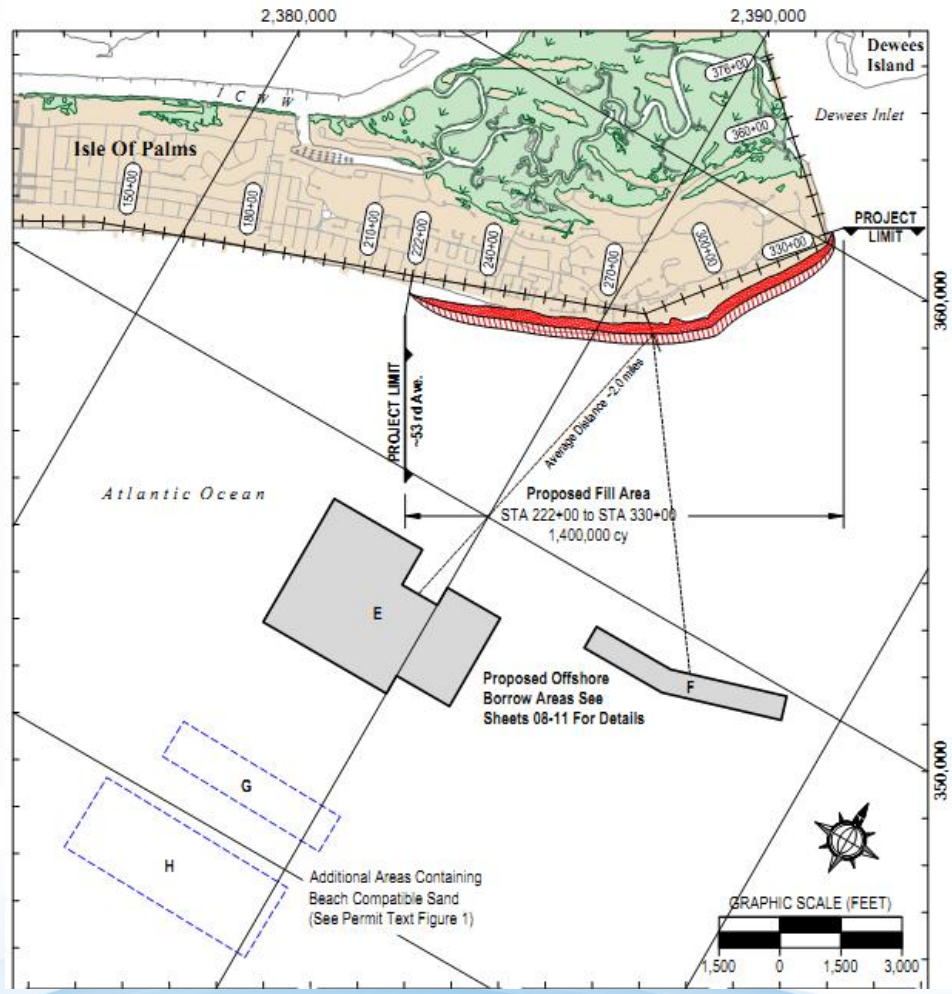
# 2014 Project

- Last large-scale shoal management project
- Moved ~80,000 cy from area north of 53<sup>rd</sup> Ave and 160,000 cy from shoal attachment site



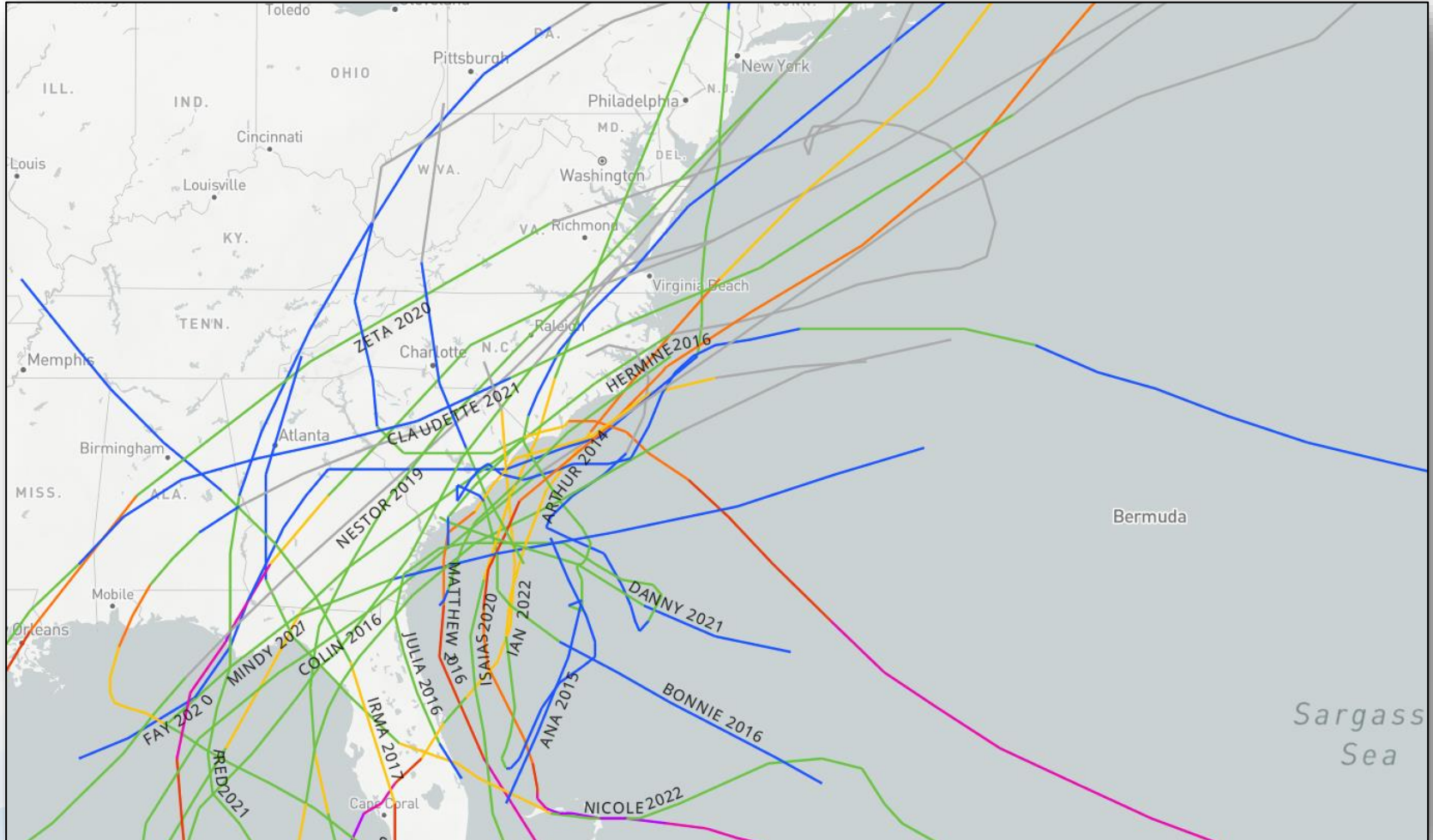
# 2018 Project

- 1,676,518 cy of sand
- \$13,545,585.70





# A Decade of Storms



# A Decade of Struggle

- 30 named storms – SCDNR
- 7 FEMA Declared Disasters since 2015
  - Joaquin, Matthew, Irma, Florence, Dorian, Ian, Idalia
  - Only 3 from 2000-2012 (all tropical storms in 2004)



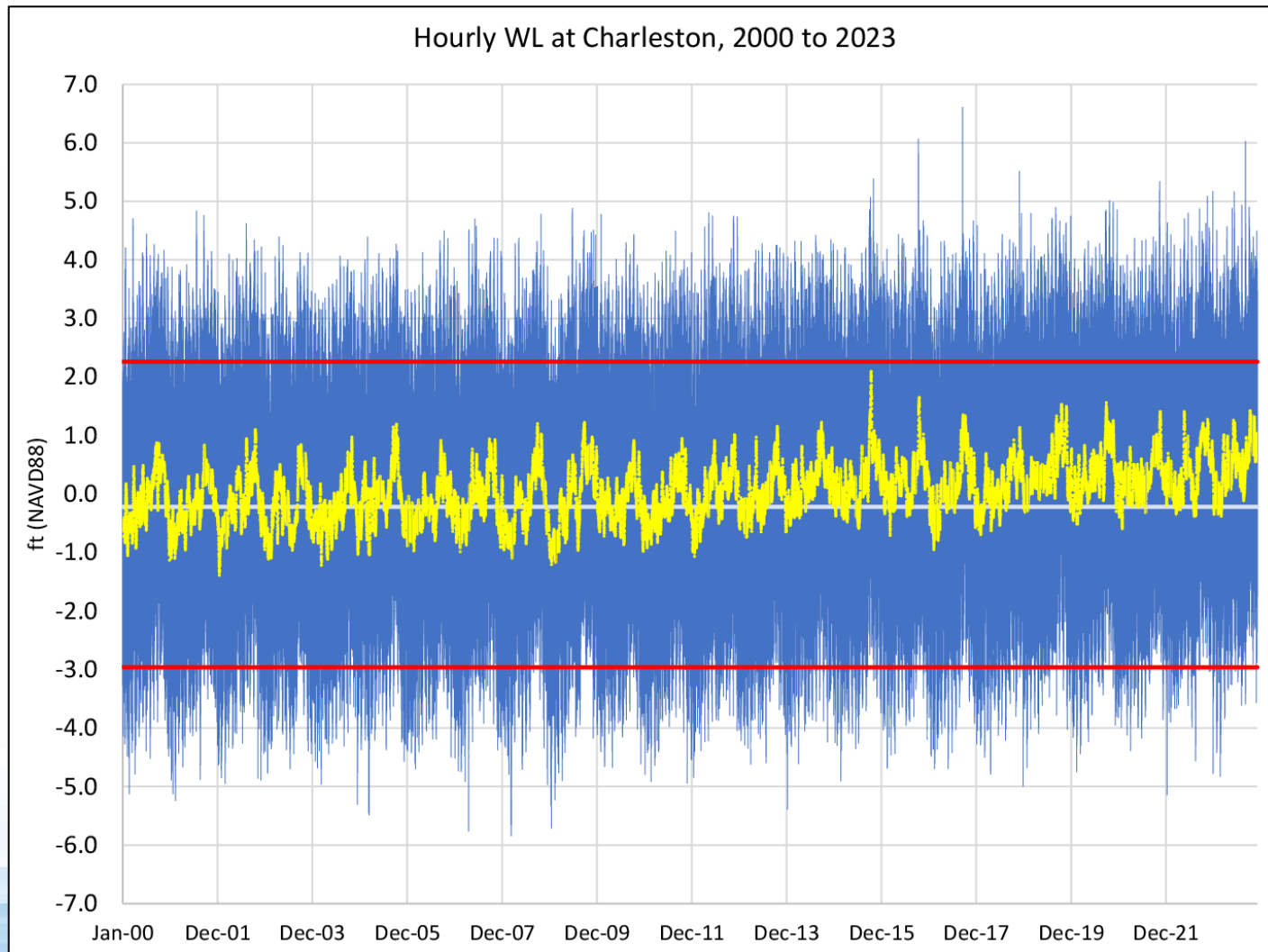
*Edisto Beach following Hurricane Matthew 2016*

Jante Morgan [myhorrynews.com](http://myhorrynews.com)

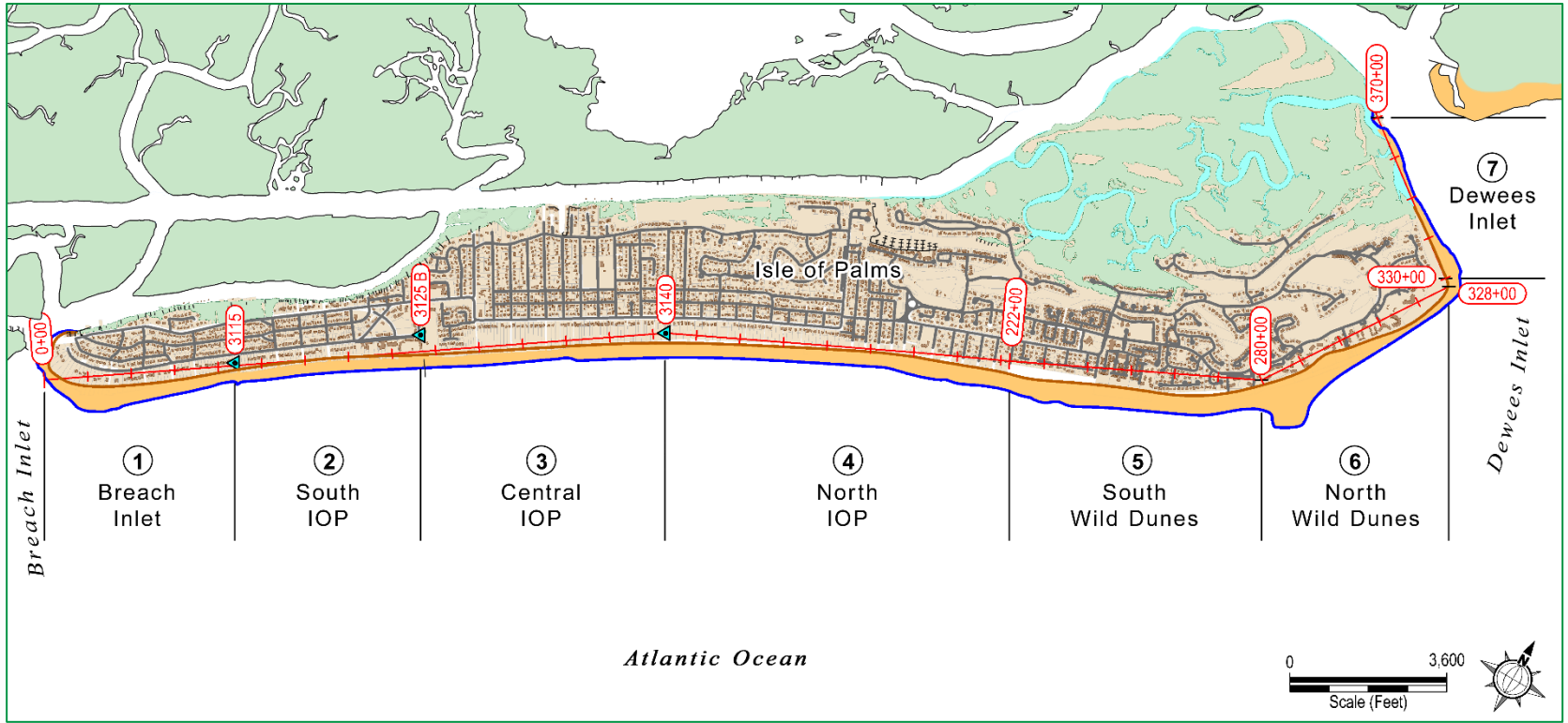


*Garden City Beach During Hurricane Ian*

# Sea Level Rise

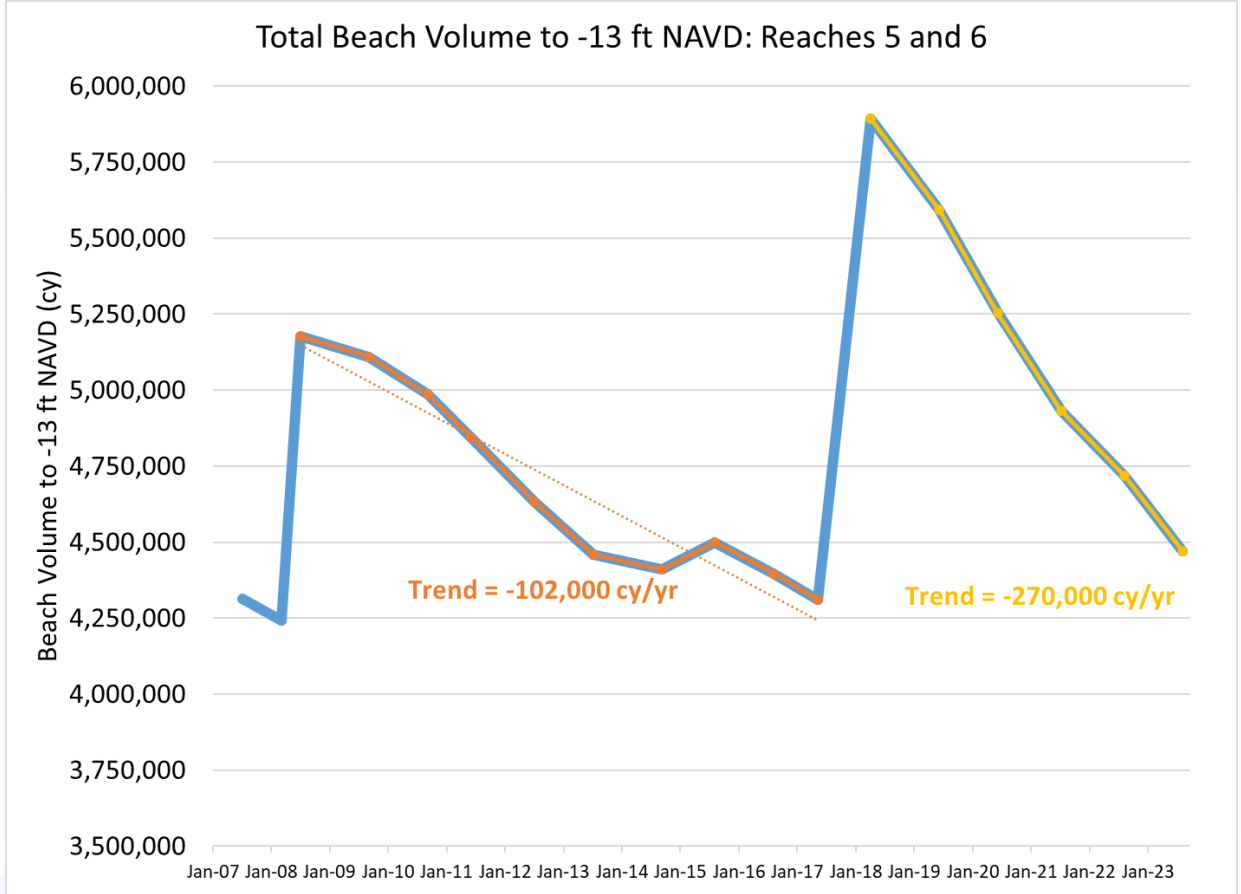


# Monitoring Areas

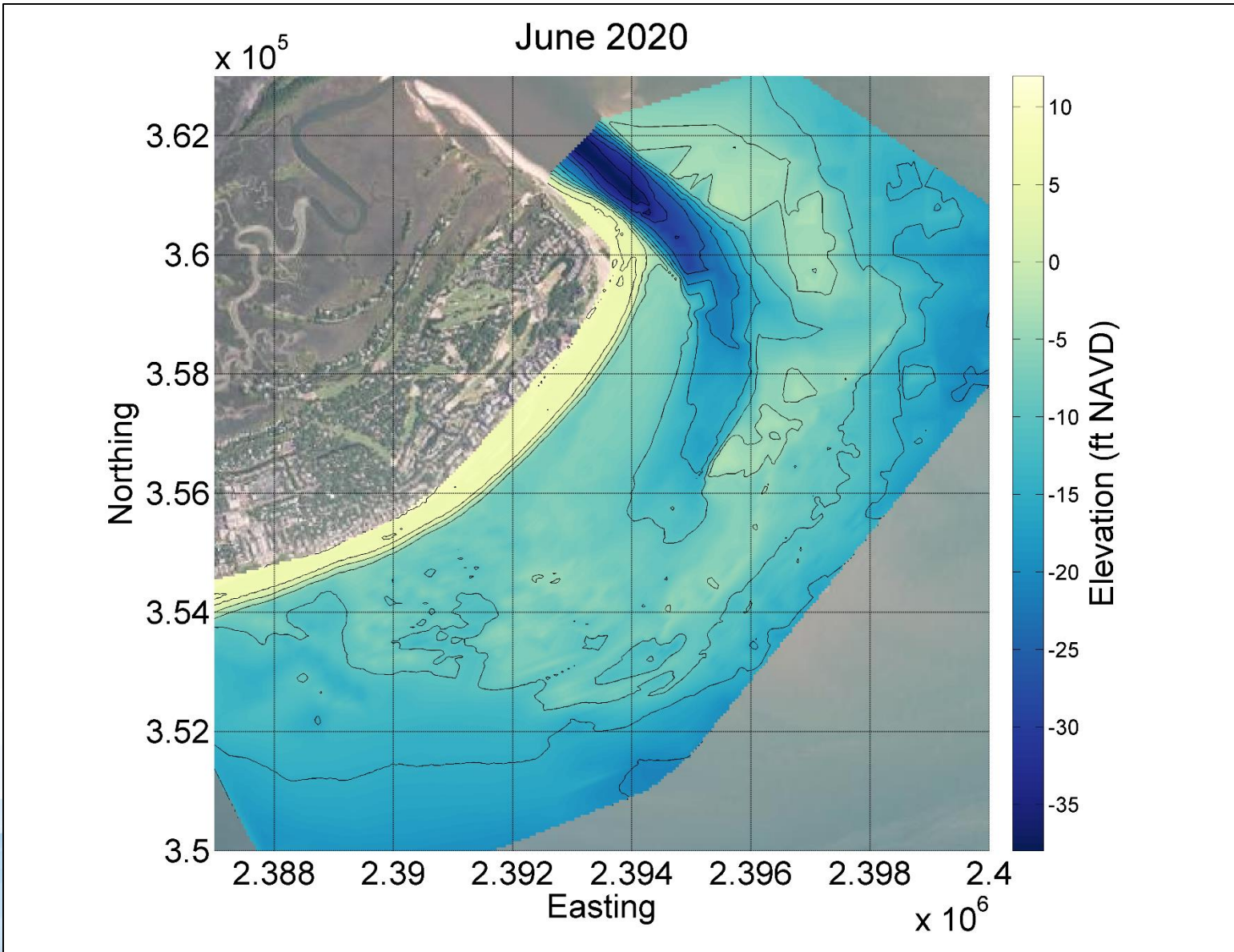


# East End Erosion

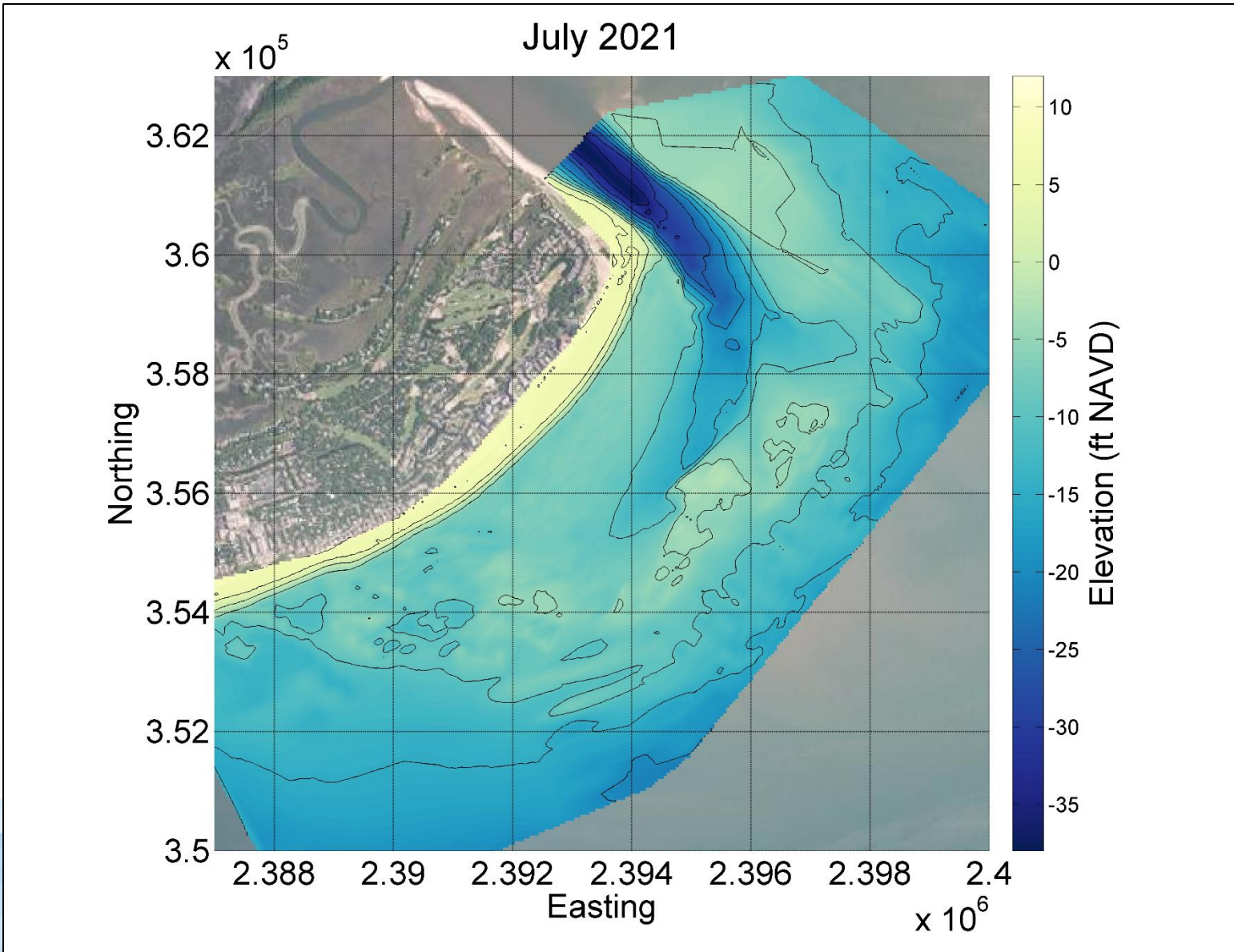
- -254,000 cy last year
- -1,400,000 cy since 2018 (90% of Fill)
- Focused erosion area near Beach Club Villas accounts for much of the loss



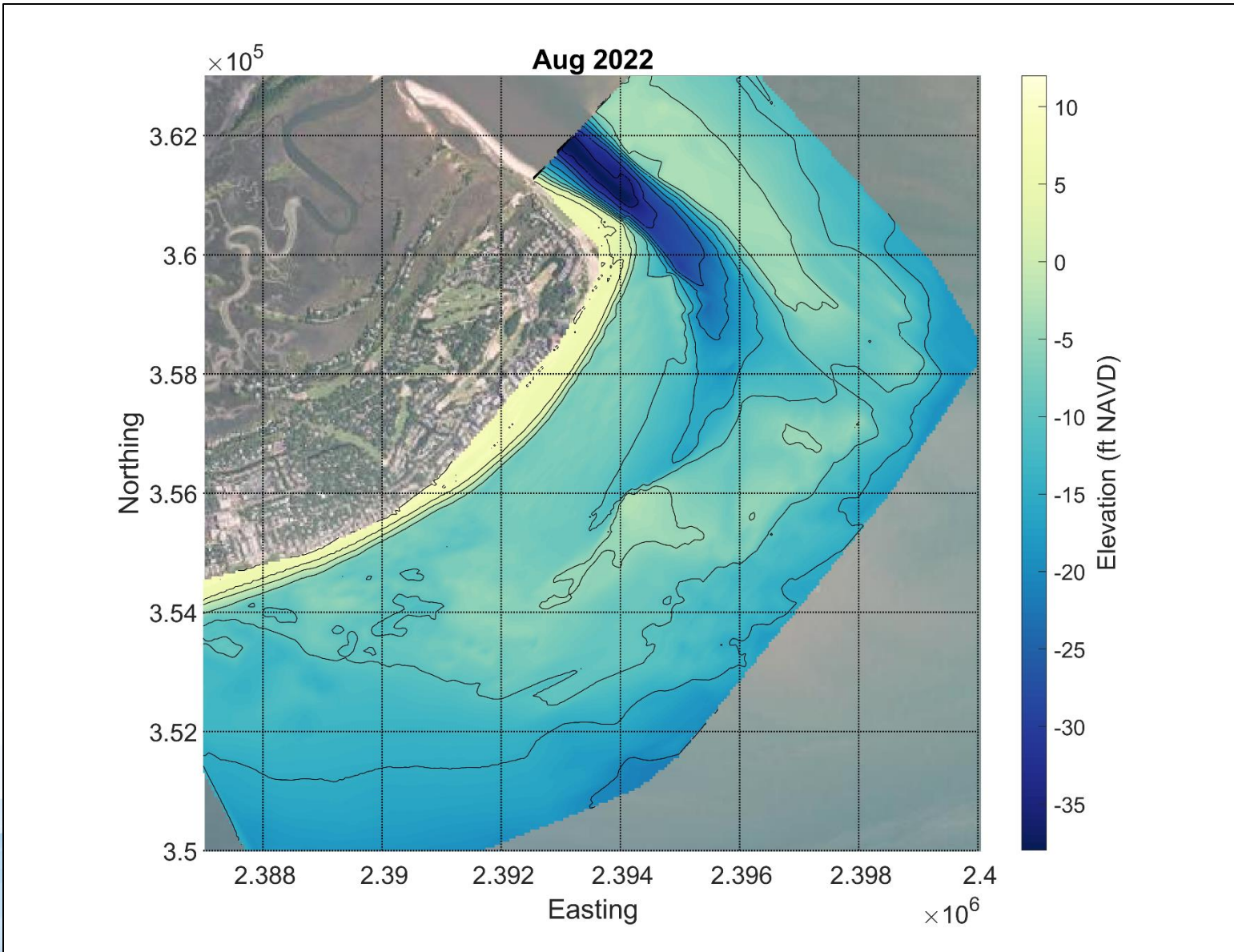
# East End Evolution



# East End Evolution

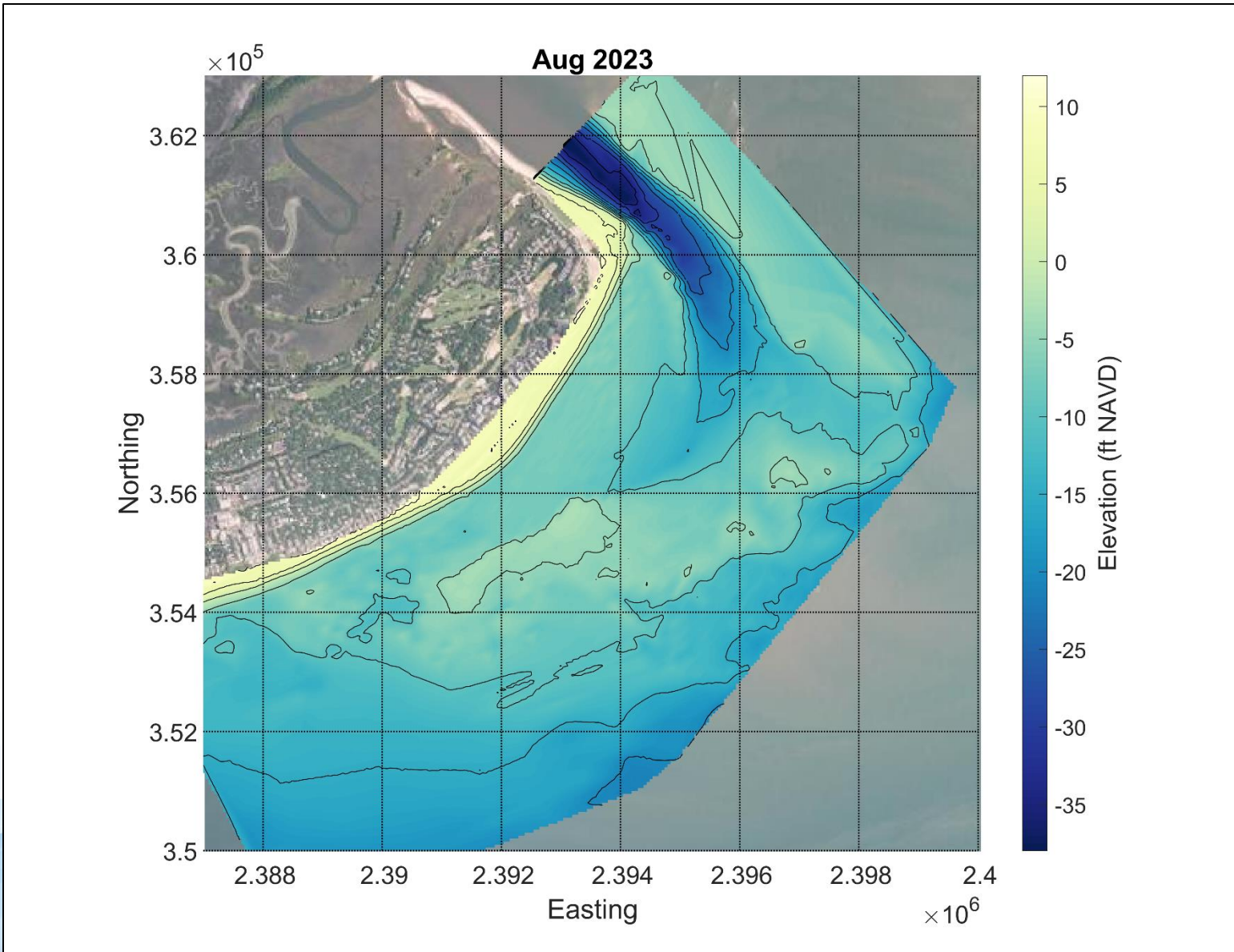


# East End Evolution



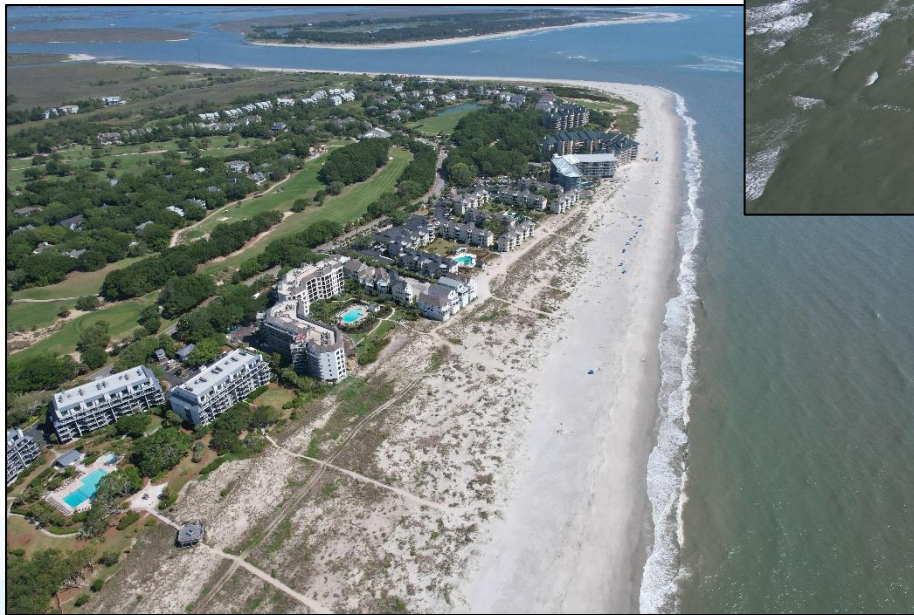


# East End Evolution



# Current Condition

Area between Grand Pavilion and Dunecrest Ln holds similar volume as the 2014 condition.

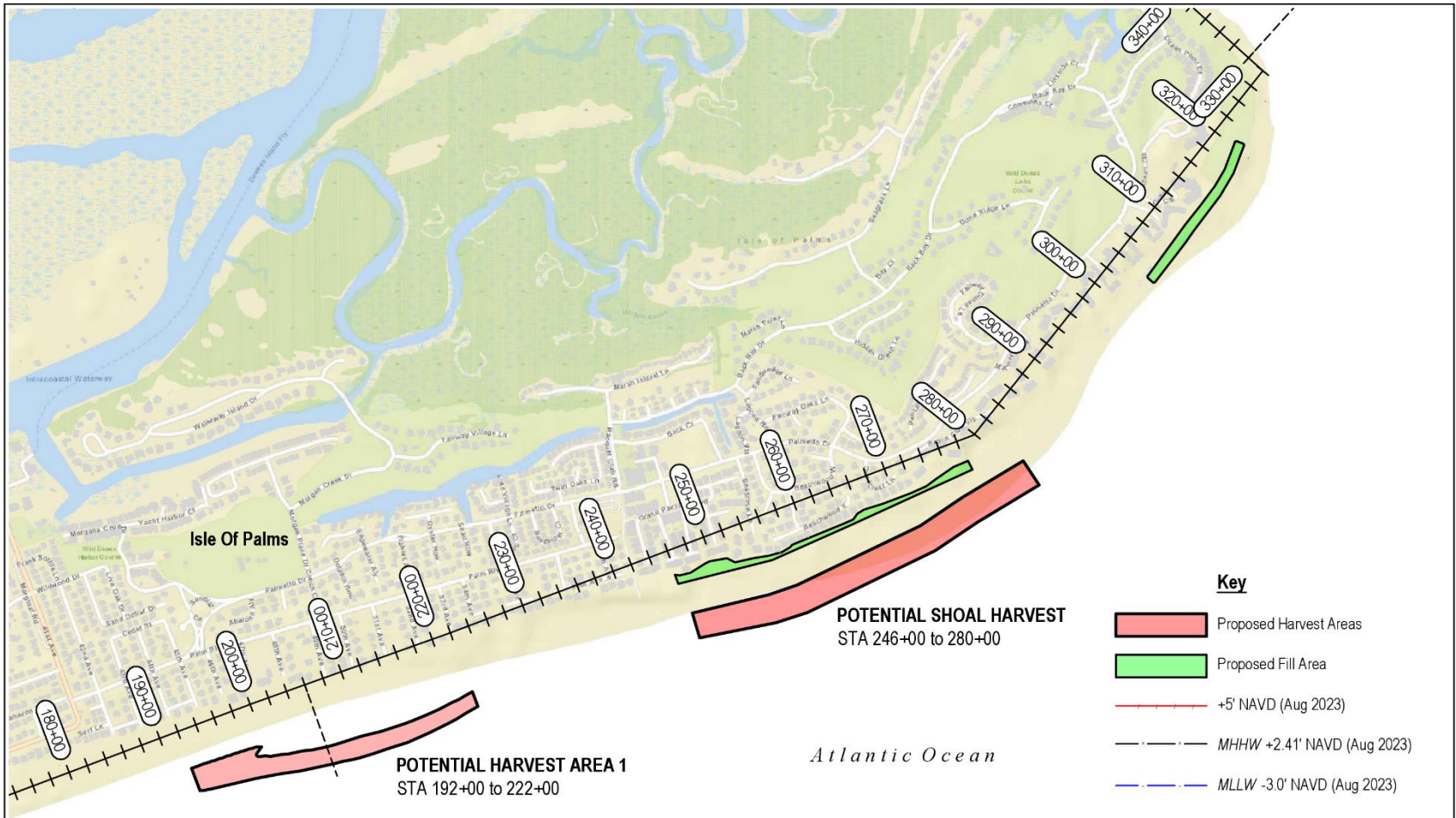


Area between Summer Dunes Ln and Ocean Club holds ~300,000 cy more sand than the 2014 condition

# Purpose of Shoal Management

- Expedite onshore sand movement
- Restore critically eroded areas
- Improve public access
- Improve/maintain dunes
- Remove emergency measures
- Allow for quick response to storms
- Extends life of large-scale dredging projects
  - Minimize mobilization cost (\$5 million) and impacts





**DATUM:**

Horizontal: SPCS NAD '83 (Feet) SC Zone 3900  
 Vertical: NAVD '88 (Feet)

Contours shown based on data collected by  
 Coastal Science & Engineering, Inc via RTK GPS Aug 2023.

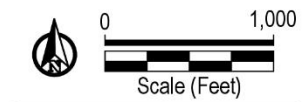
**NOTE:**

Excavation and fill limits and volumes may  
 change based on conditions at the time of  
 construction, but will remain within permitted  
 boundaries and abide by all special conditions  
 of the permit.

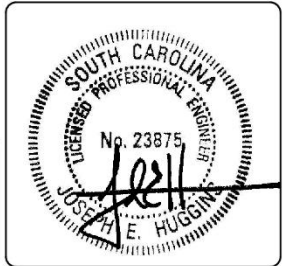
**APPLICANT:**  
 City of Isle of Palms  
 1207 Palm Blvd  
 Isle of Palms, SC 29451

**AGENT:**  
 Coastal Science & Engineering  
 PO Box 8056  
 Columbia, SC 29202

**DRAWING TITLE:**  
**EXISTING CONDITION (August 2023)  
 PROPOSED SCRAPING & FILL PLAN**



Scale:	As Shown	Sheet #:	<b>02</b>
Date:	5 April 2024		
Revised:			
Project #:	2589		

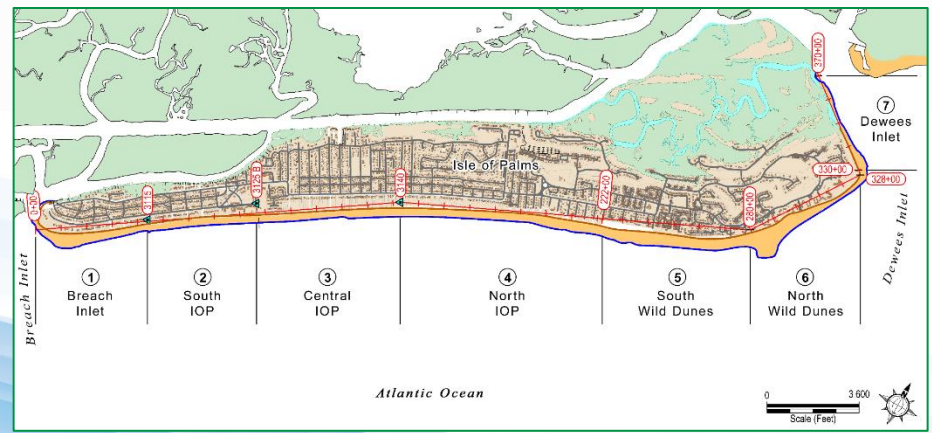
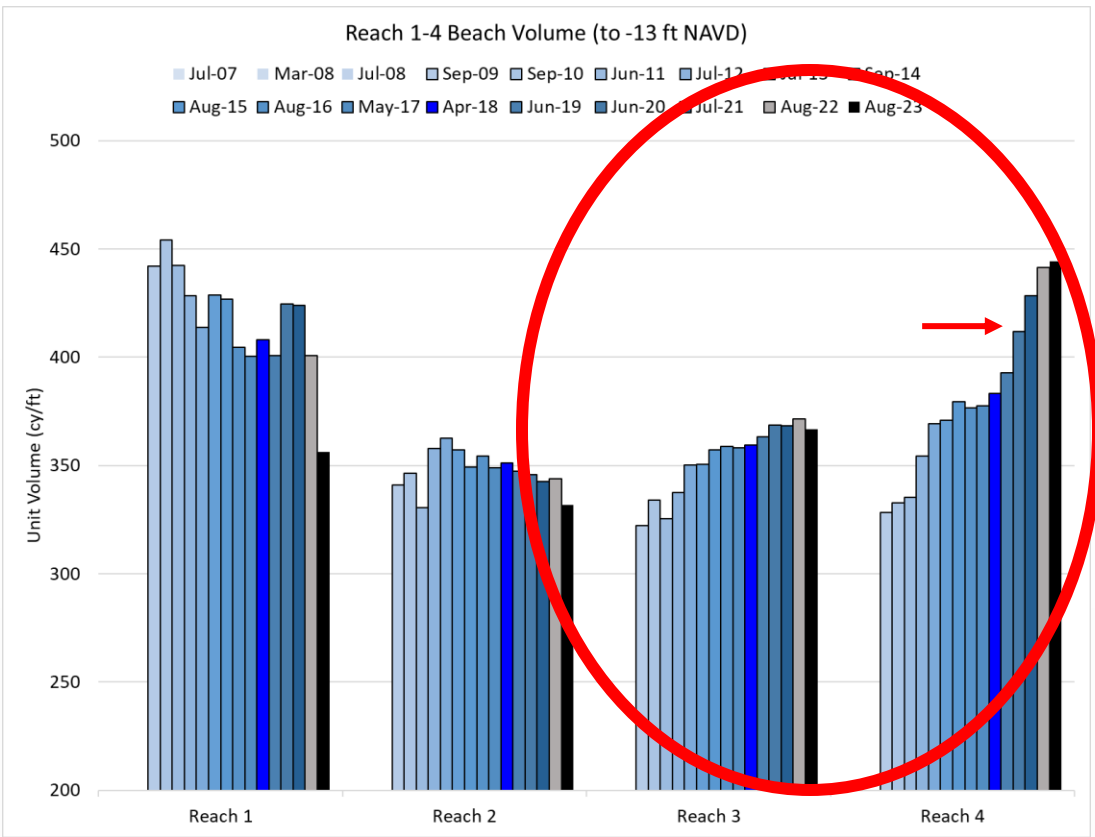


# Project Details

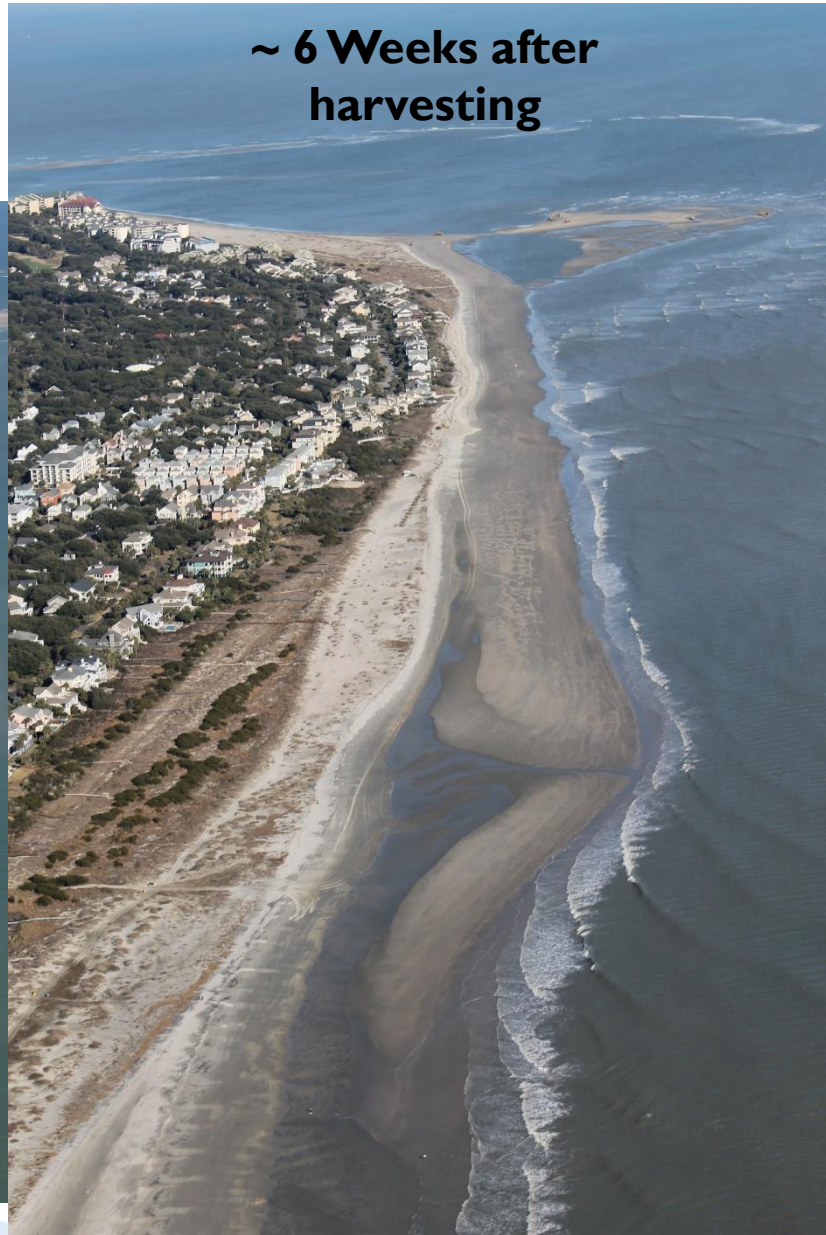
- Up to two events totaling 400,000 cy of sand
- Single event limited to 250,000 cy
- Shoal attachment site is priority harvest area
- Limit of 100,000 cy from Avenues
- Work restricted to winter months
- Land-based equipment, likely requiring 2-3 months
- Accretional area along the Avenues for use if no shoal sand is accessible and beach conditions warrant work (emergency situation)
- All excavations limited to wet-sand beach (no work in dunes or dry sand beach)
- Majority of beach will be open to public
- 600 ft Buffer for avenues harvest area

# Downcoast Areas

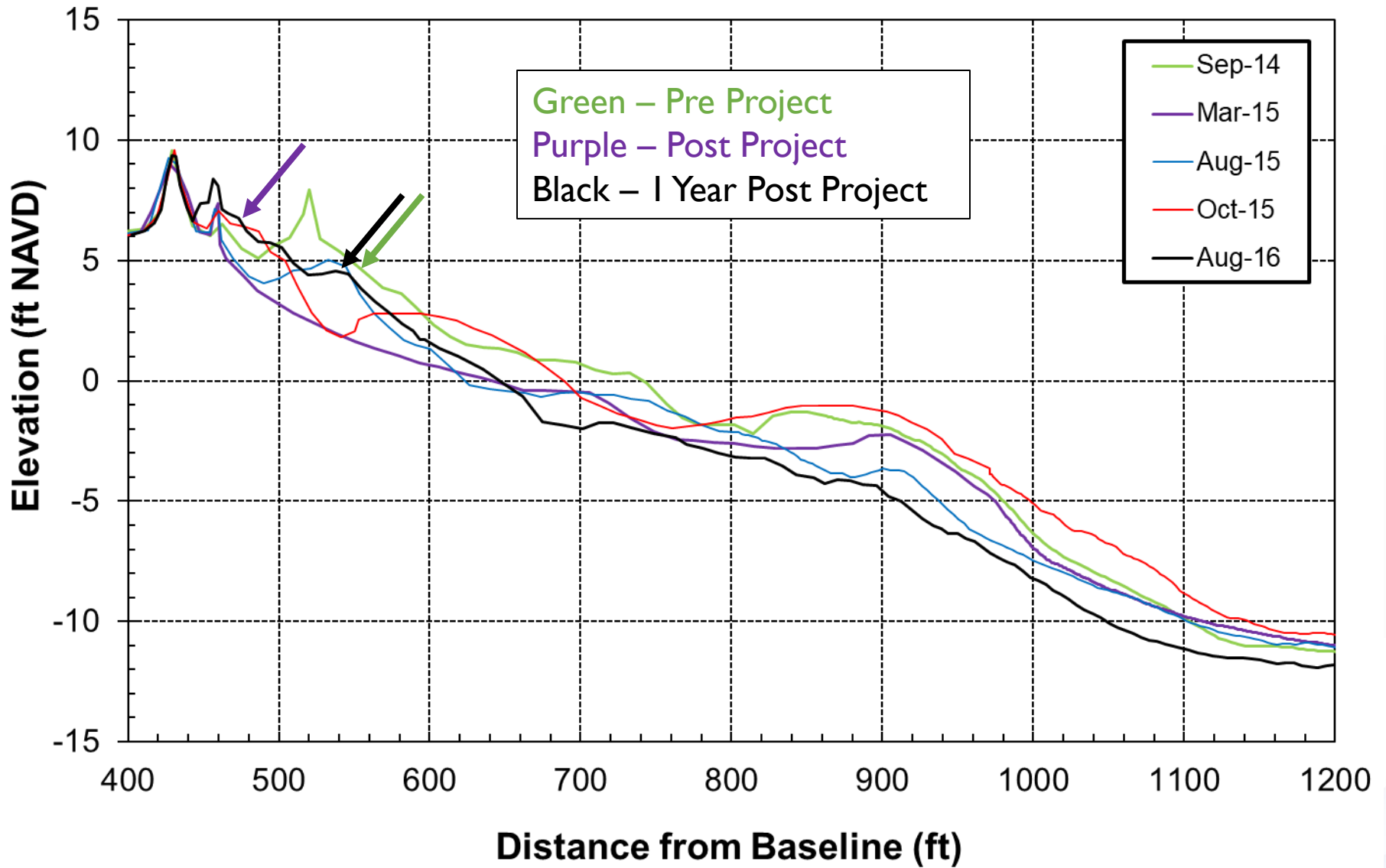
- Reach 4 has gained ~917,000 cy since 2009
- Reach 3 has gained 250,000 cy
- Includes 375,000 cy gain within potential Avenues harvest area since 2018.
- At most, up to 33 cy/ft would be harvested from Avenues area in Reach 4



# Post-Project Recovery 2015



# Station: 226+00 (4+00)





# Moving Forward

- **USACE Beneficial Use Project**
  - Initial construction underway.
  - Likely to take 4-5 months
  - Would place ~500,000 cy in the system
  - IOP can shift sand to eroded areas, but we expect natural migration as well
- **Shoal Management/Sand Recycling Project**
  - Interim projects to harvest sand from accretional areas and place in eroded areas to combat episodic erosion events
- **Large-scale Nourishment**
  - Conducting sand search analysis and coordination with SHPO and BOEM to identify sand sources
  - Would include placement options at both ends of the island