



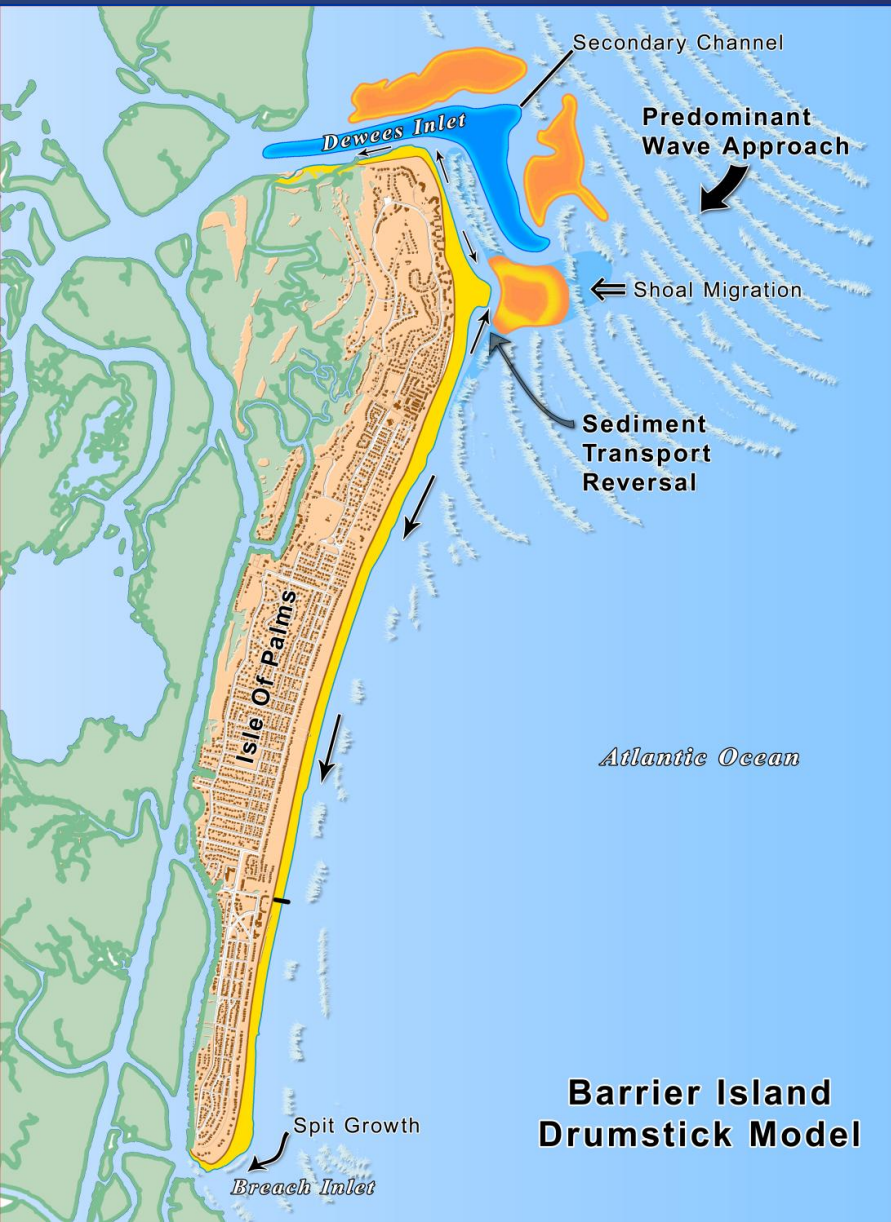
15 Feb 2011

2010 Beach Monitoring Results

# ISLE OF PALMS BEACH RESTORATION PROJECT



# Sediment Transport at Isle of Palms



# Shoal Bypassing at Isle of Palms



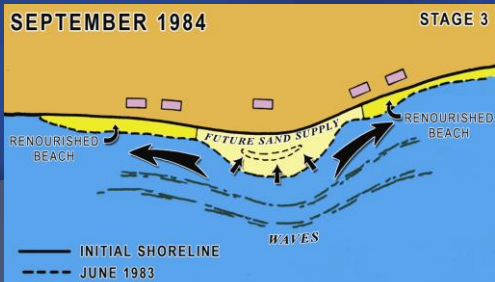
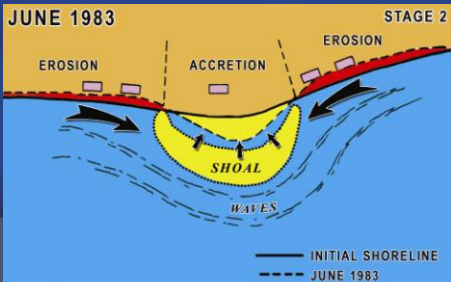
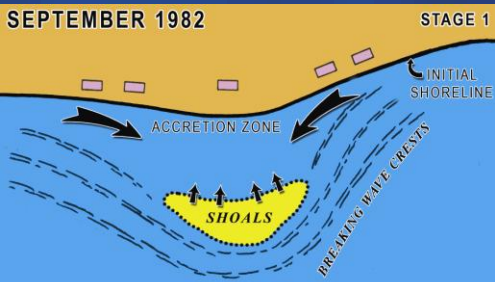
1996



1997



1998



# Channel Avulsion at Isle of Palms



1944

# Channel Avulsion at Isle of Palms



1949

# Channel Avulsion at Isle of Palms



1953

# Channel Avulsion at Isle of Palms



1957

# Channel Avulsion at Isle of Palms

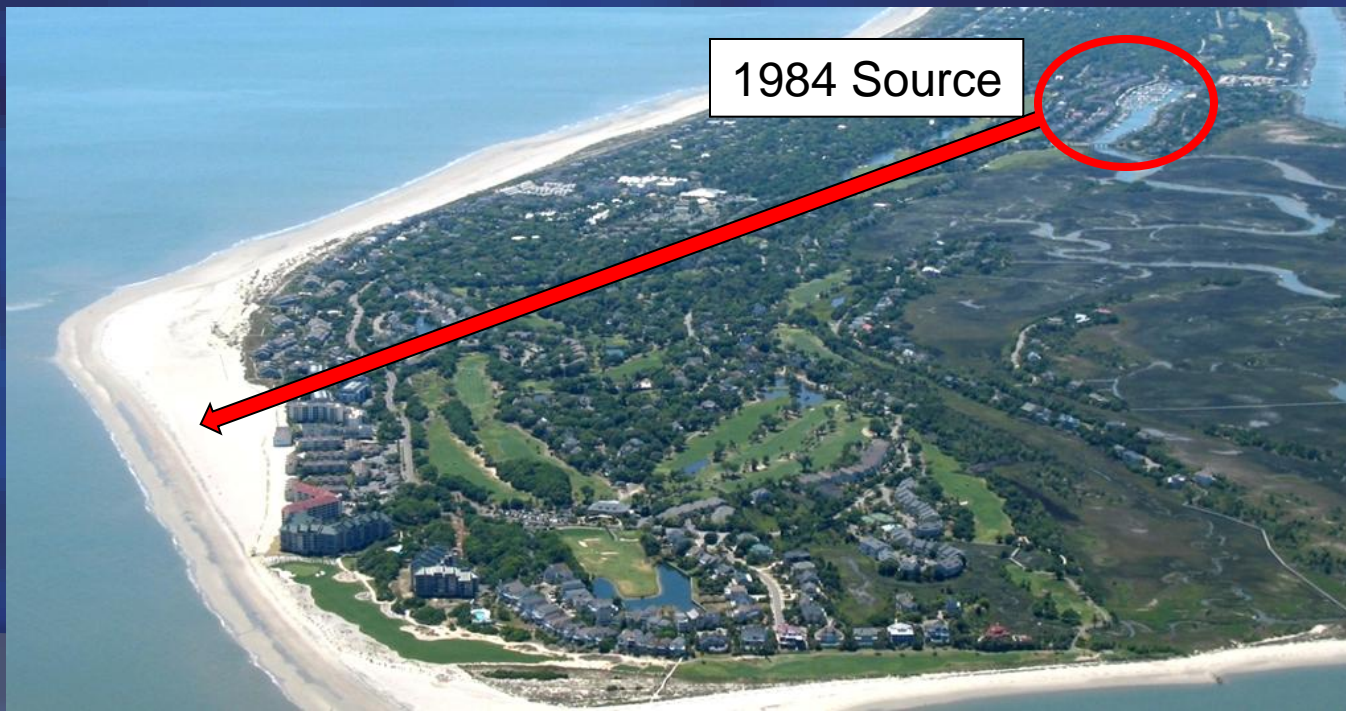


1963



# Renourishment History

- 1984 - ~350,000 cy from Marina
- 1980-1990's sand scraping from attaching shoals
- 2008 – 900,000 cy from offshore
- Minor additions from upland sources



# 2008 Beach Restoration Project

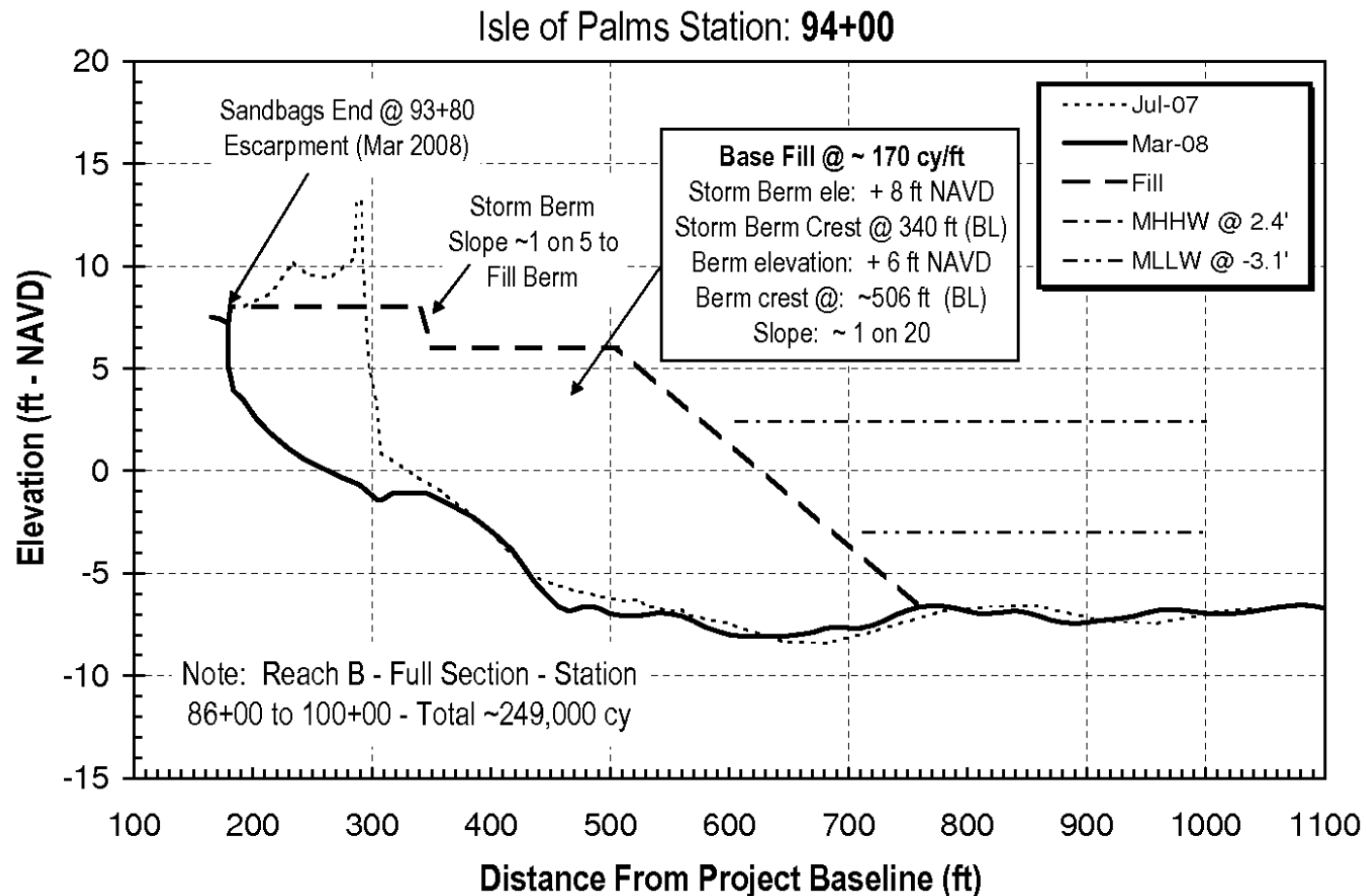


December 2007



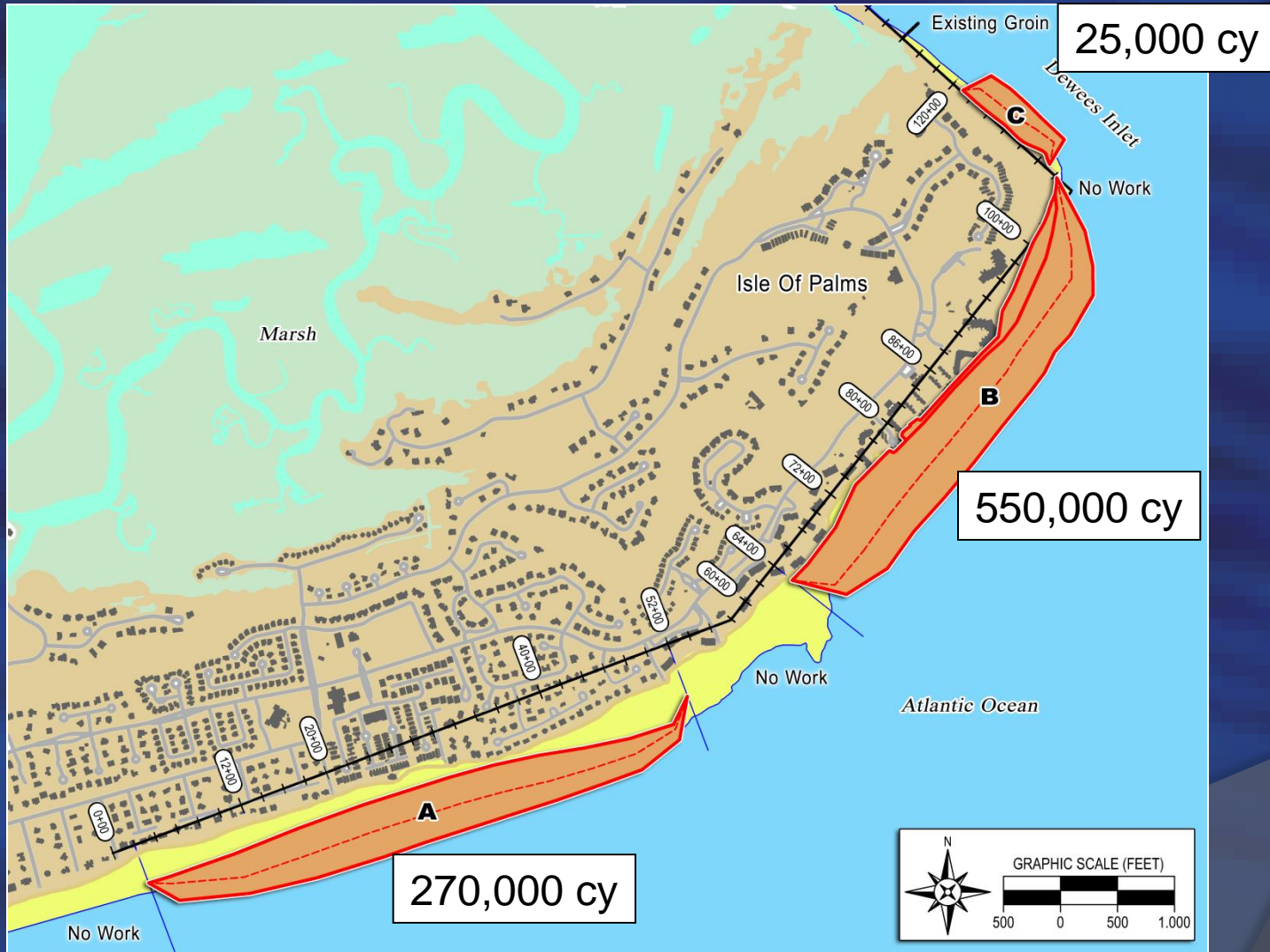
May 2008

# 2008 Beach Restoration Project



Determine fill volume by creating ideal profile, then adding additional fill based on historical erosion

# 2008 Beach Restoration Project



# 2008 Beach Restoration Project

- Pumping between May 24<sup>th</sup> and June 25<sup>th</sup> 2008
- ~ 934,000 cy of sand added to ~10,200 linear ft of beach
- Fill volumes ranged from 27 cy/ft to ~180 cy/ft
- Removal of ~9,400 large sand bags and ~5,400 cy of small bags
- Contractor – Weeks Marine Dredging Company

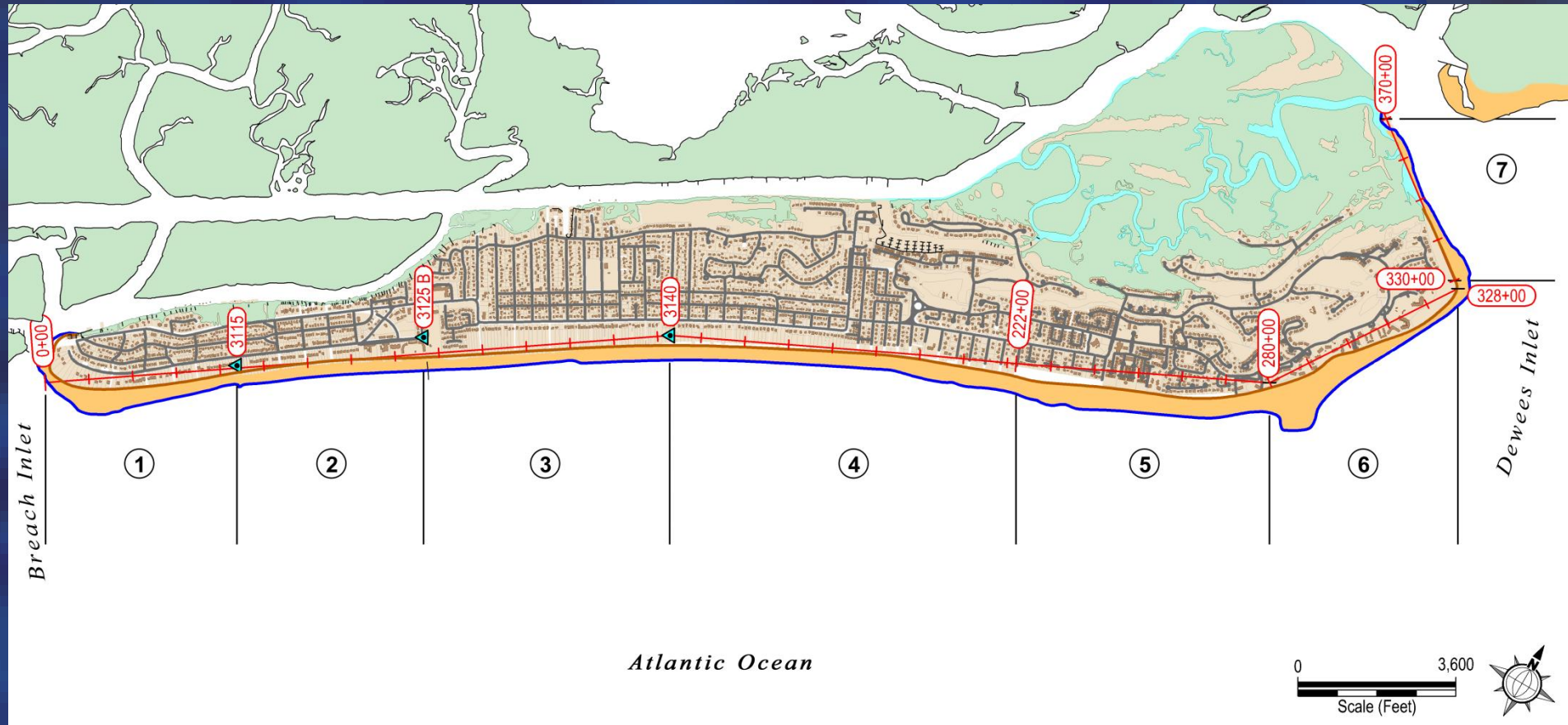


# 2008 Beach Restoration Project



# Beach Monitoring

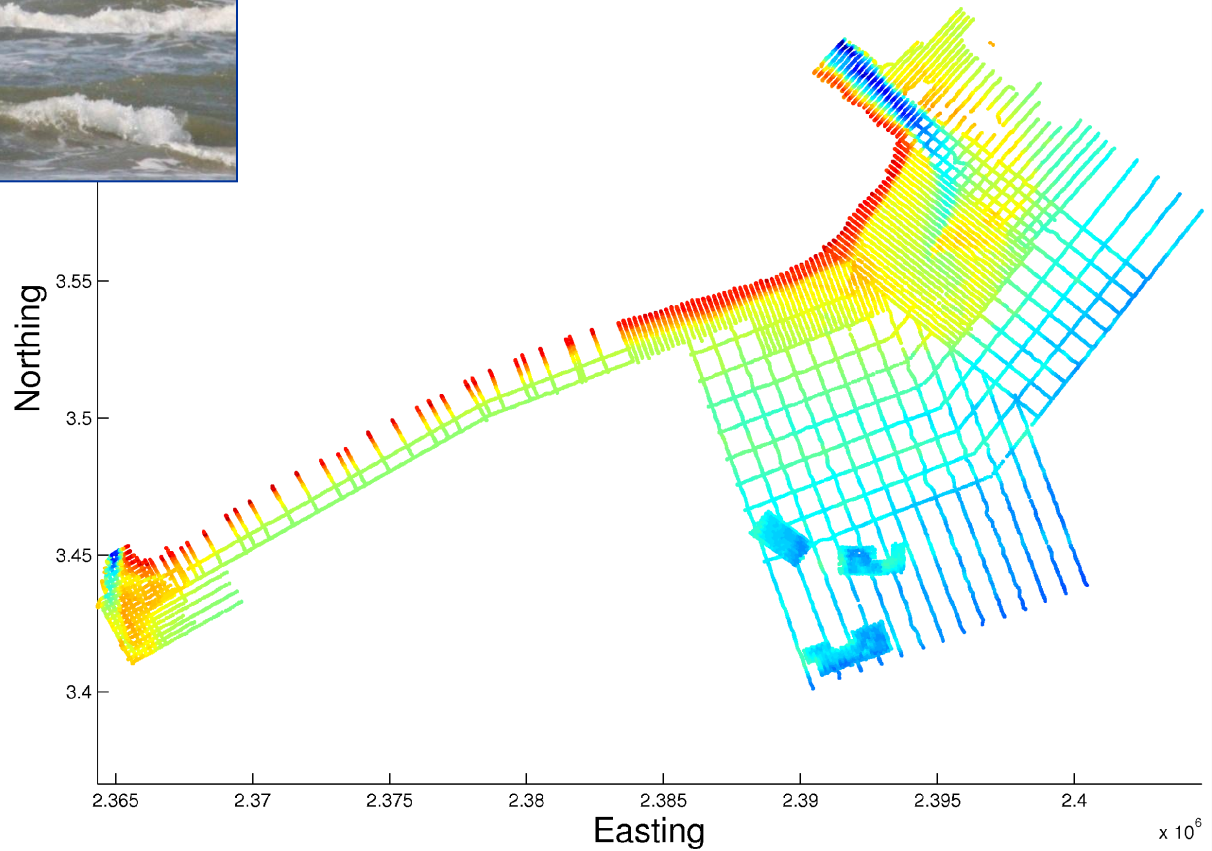
- 7 Monitoring Reaches over ~7 miles of shoreline
- Over 120 monitoring stations and 220 miles of survey lines



# Beach Monitoring



March 2009 Monitoring Survey





# Shoal Bypass Events

Isle of Palms

**29 September 2007**

Aerial imagery obtained by Independent Mapping Consultants, Charlotte, NC



Isle of Palms

**30 March 2009**

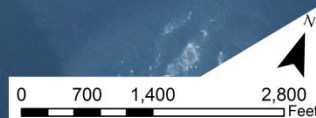
Aerial imagery obtained by Independent Mapping Consultants, Charlotte, NC



Isle of Palms

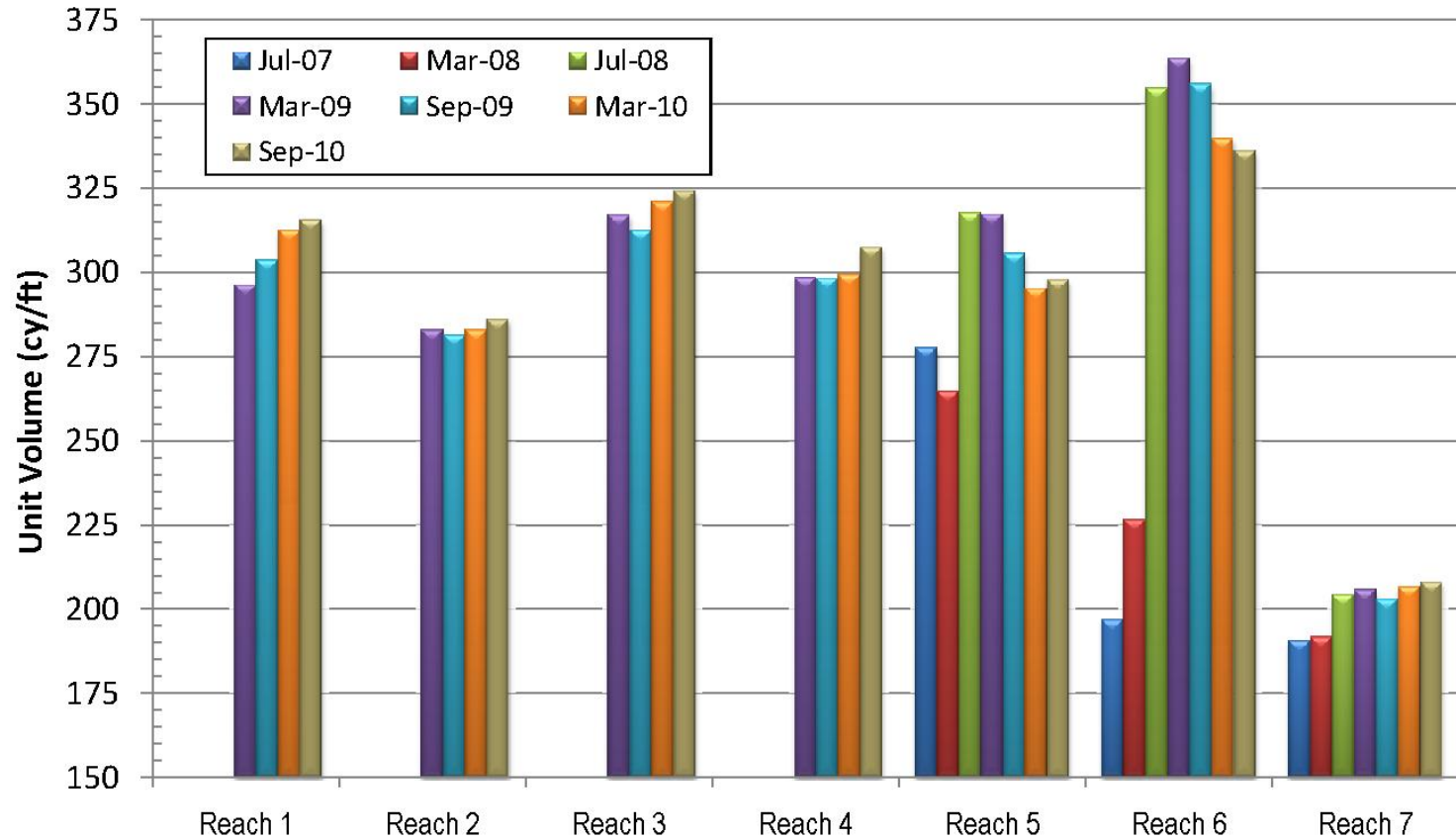
**02 April 2010**

Aerial imagery obtained by Independent Mapping Consultants, Charlotte, NC

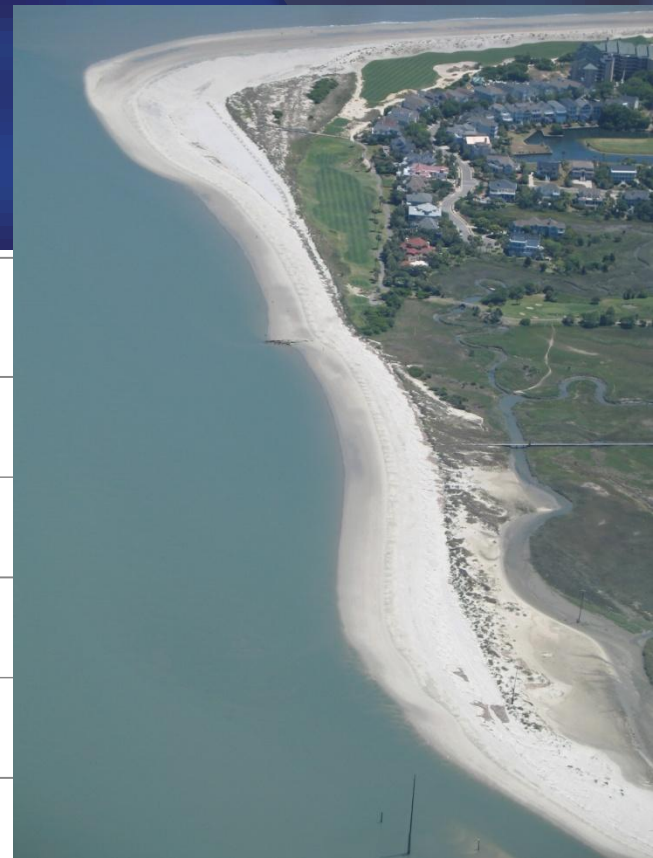


# Reach Unit Volumes

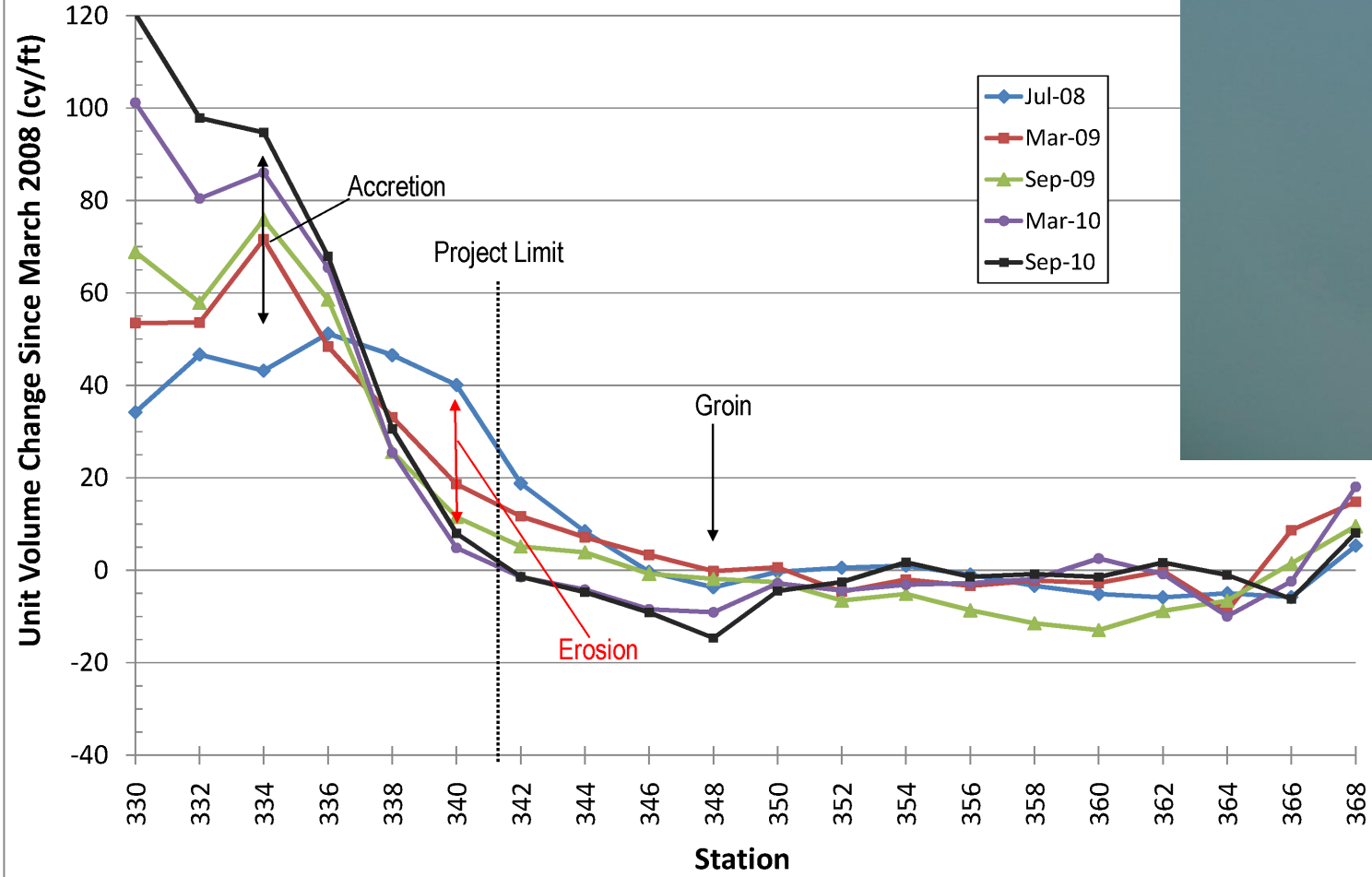
## Isle of Palms Reach Unit Volumes (cy/ft)



# Reach 7



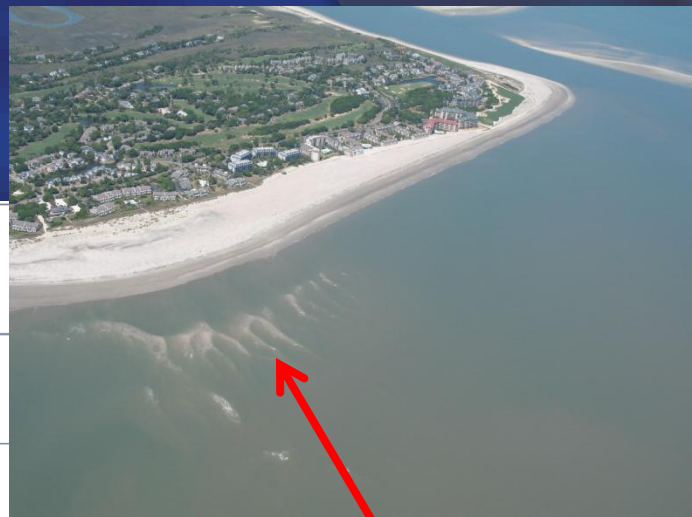
Unit Volume Relative to Pre-Nourishment (March 2008)  
Reach 7 - Dewees Inlet



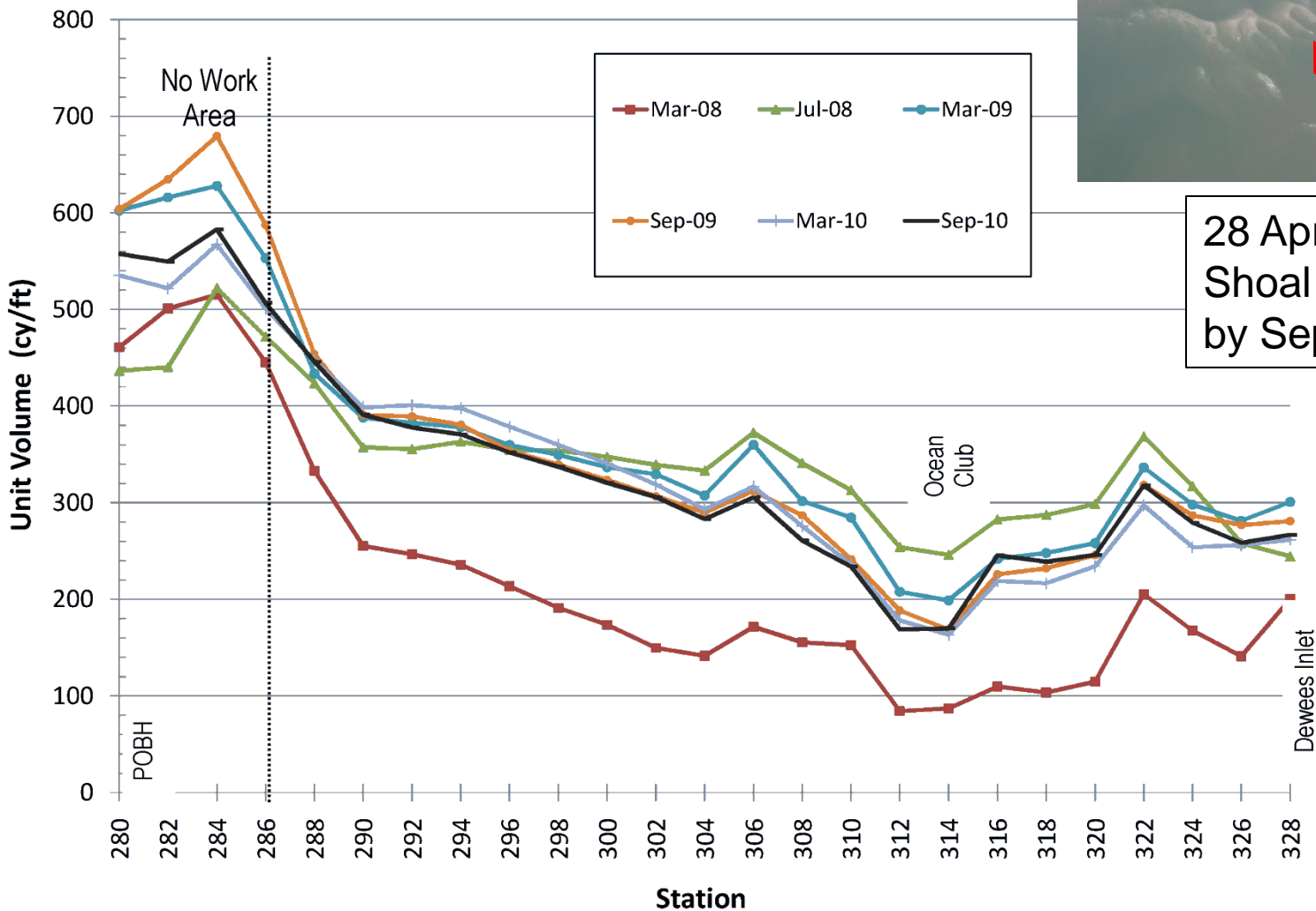
Sept 09 – Sept '10 Change  
**+21,000 cy**  
**+5.3 cy/ft**



# Reach 6



Unit Volume (cy/ft) - Reach 6



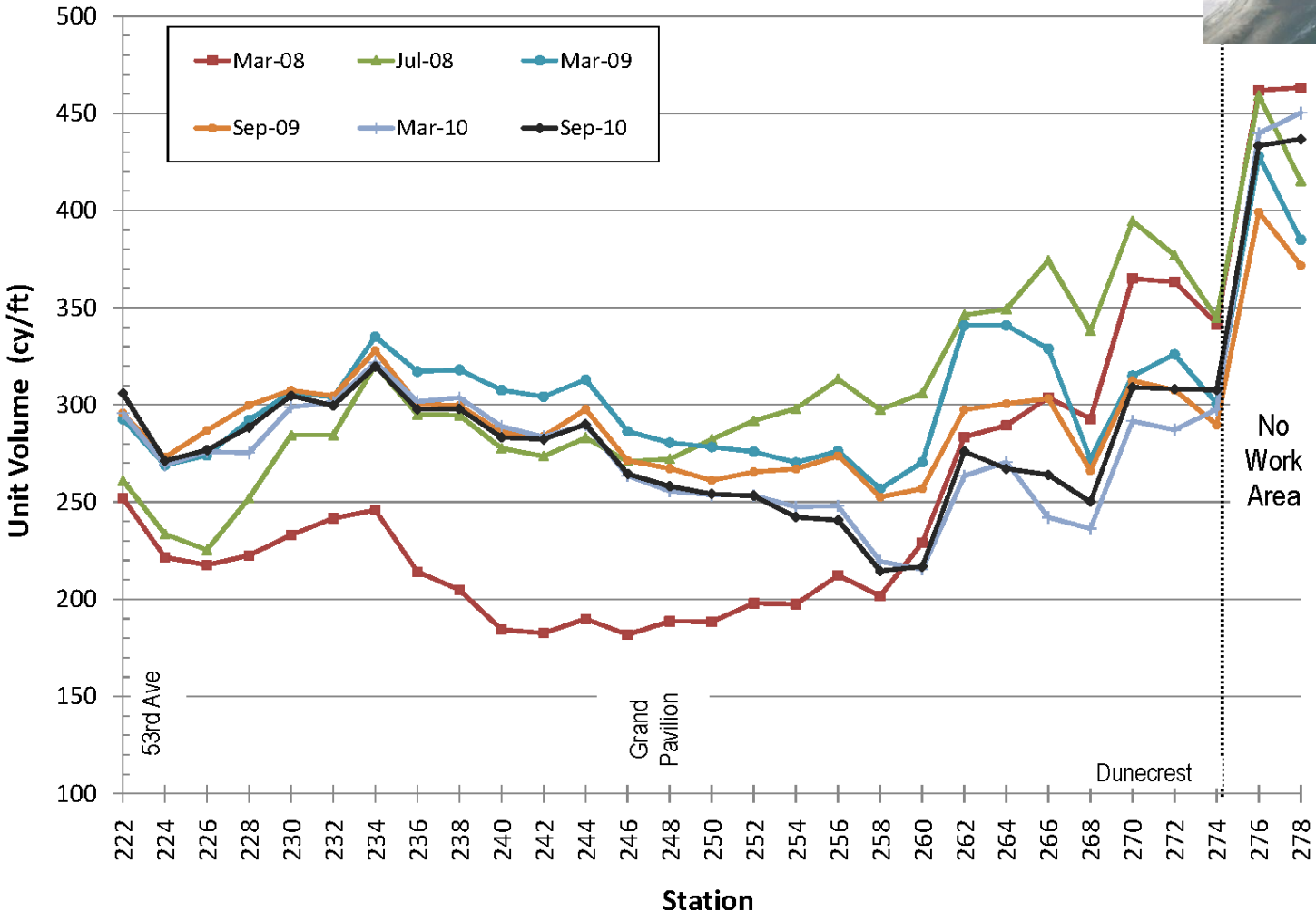
28 April 2010 Photo-Shoal was attached by September 2010

Sept 09 – Sept '10 Change  
**-96,700 cy**  
**-19.7 cy/ft**

# Reach 5



Unit Volume (cy/ft) - Reach 5



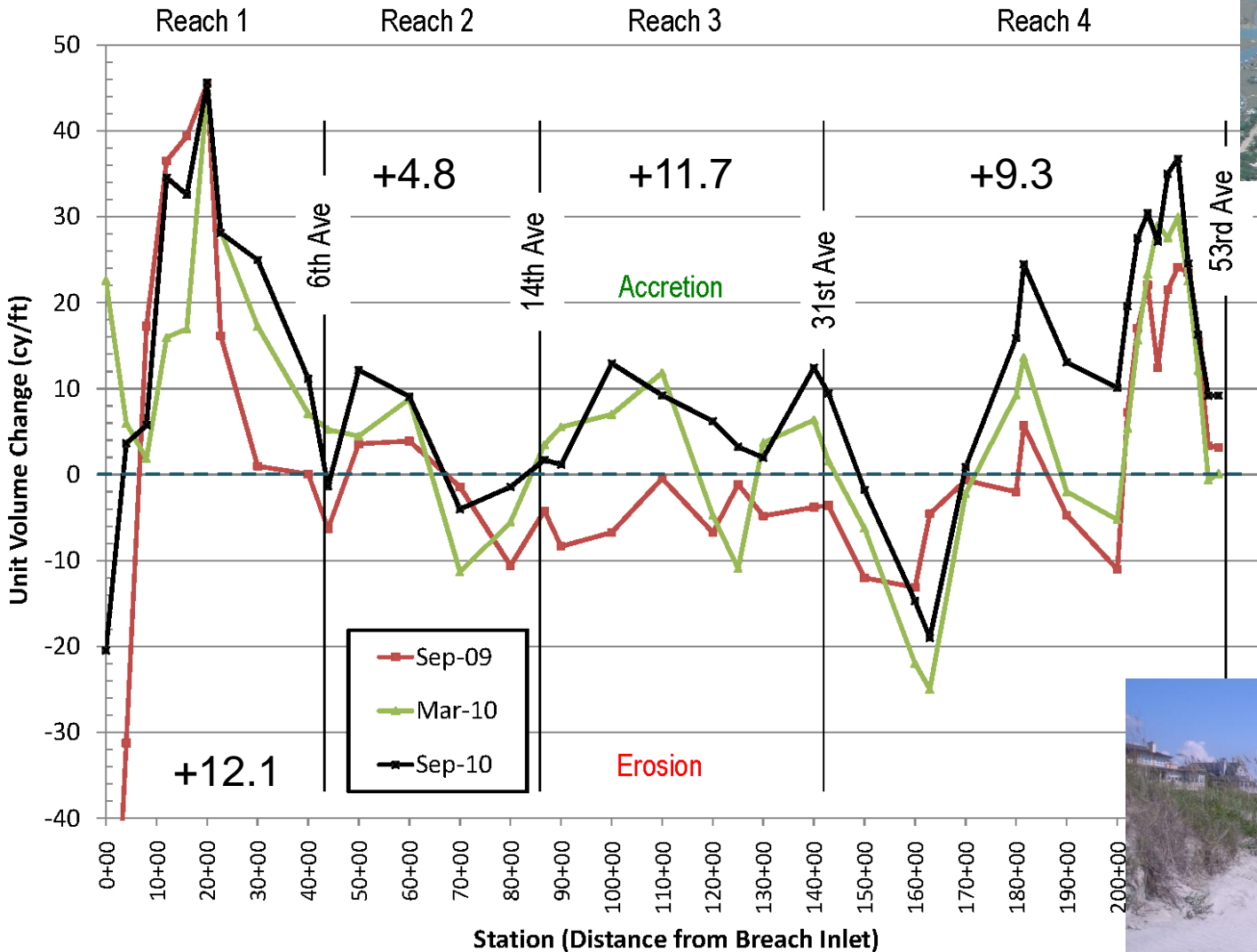
Sept 09 – Sept '10 Change  
**-46,300 cy**  
**-7.7 cy/ft**



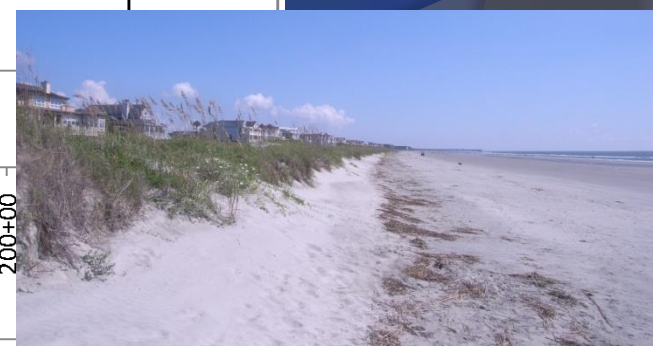
# Reaches 1-4



Unit Volume Change Since March 2009 (cy/ft)

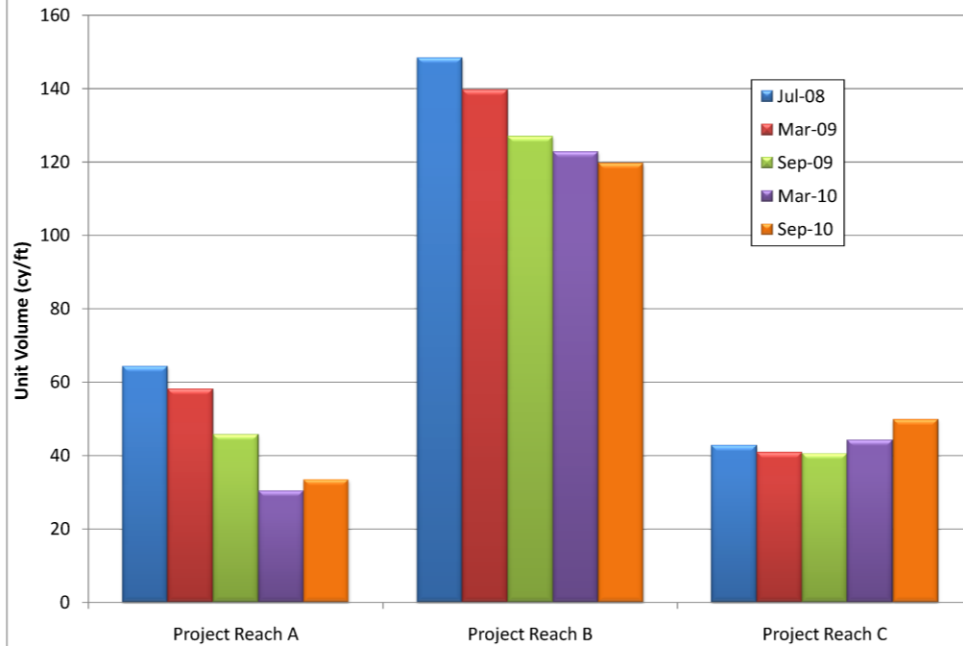


Sept 09 – Sept '10 Change  
**+213,000 cy**  
**+9.6 cy/ft**



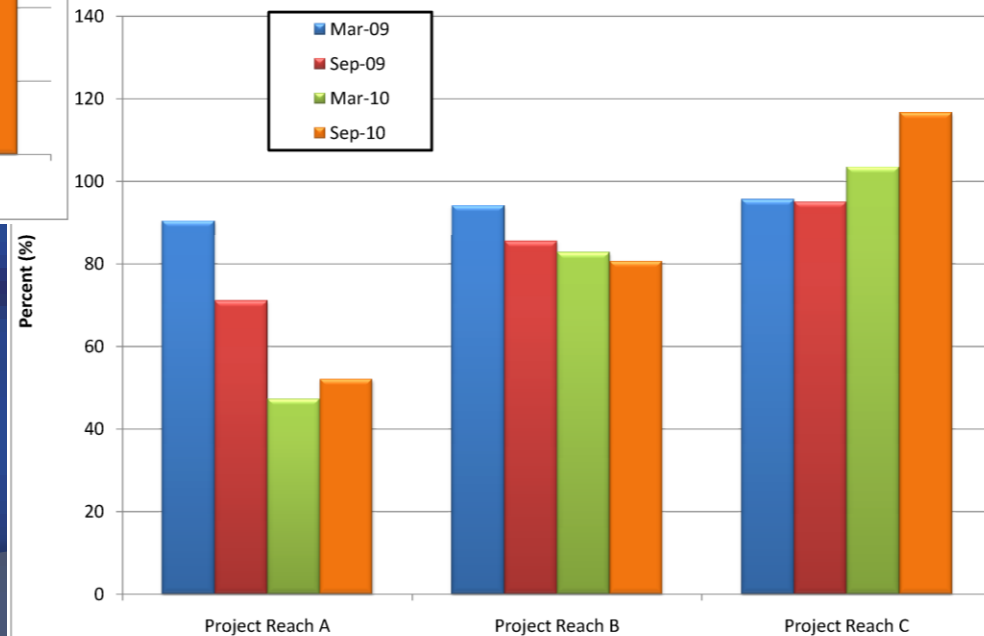
# Project Areas

Isle of Palms - Project Area Unit Volumes Relative to the Pre-nourishment Condition (cy/ft)



Overall, project areas retain ~72% of the volume gain and 86% of the design volume.

Isle of Palms - Percent of Nourishment Volume Remaining In Project Reaches

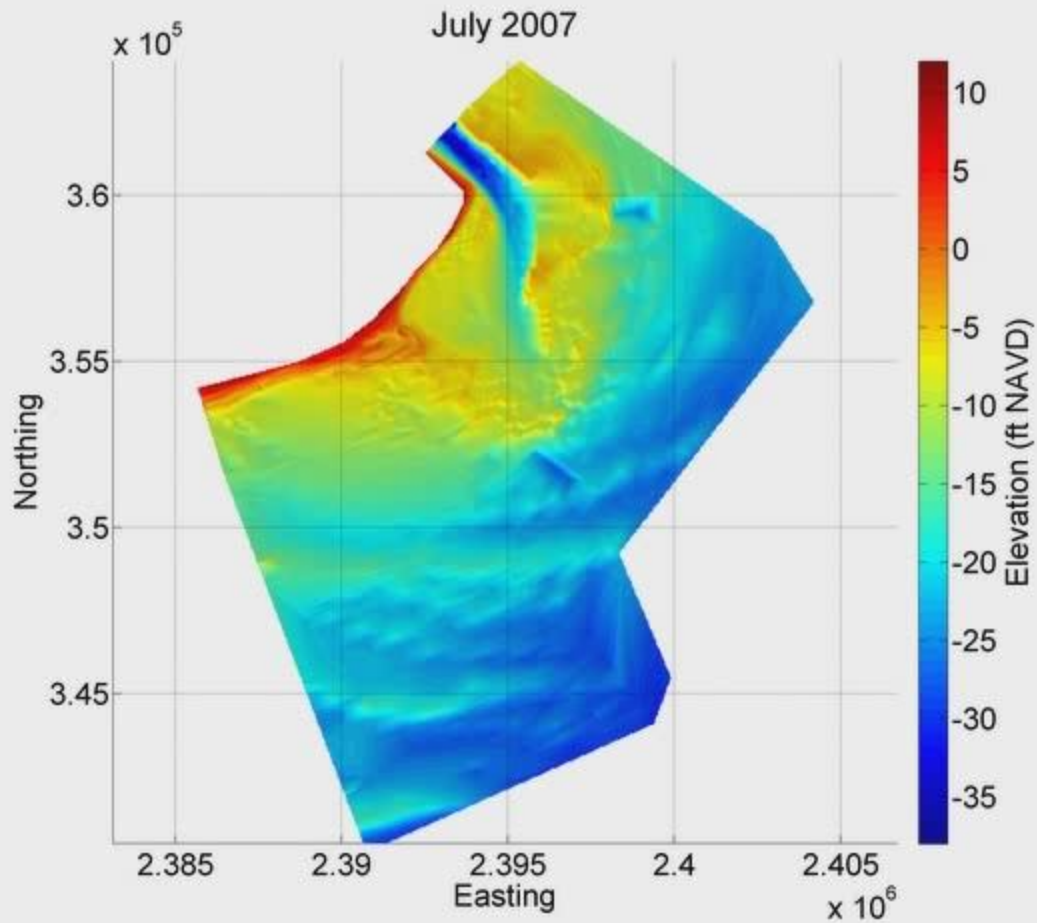


# Volume Changes

- Overall, the island gained 91,100 cy (2.5 cy/ft) between Sept '09 and Sept '10
- Net erosion between Sept '09 and March 2010 [-26,200 cy (0.7 cy/ft)]
- Net accretion between March and Sept '10 [+117,300 cy (3.2 cy/ft)]
- Reach 5-7 lost 126,700 cy (8.5 cy/ft) from Sept 09 to March '10 but gained 4,900 cy (0.3 cy/ft) from March to Sept '10

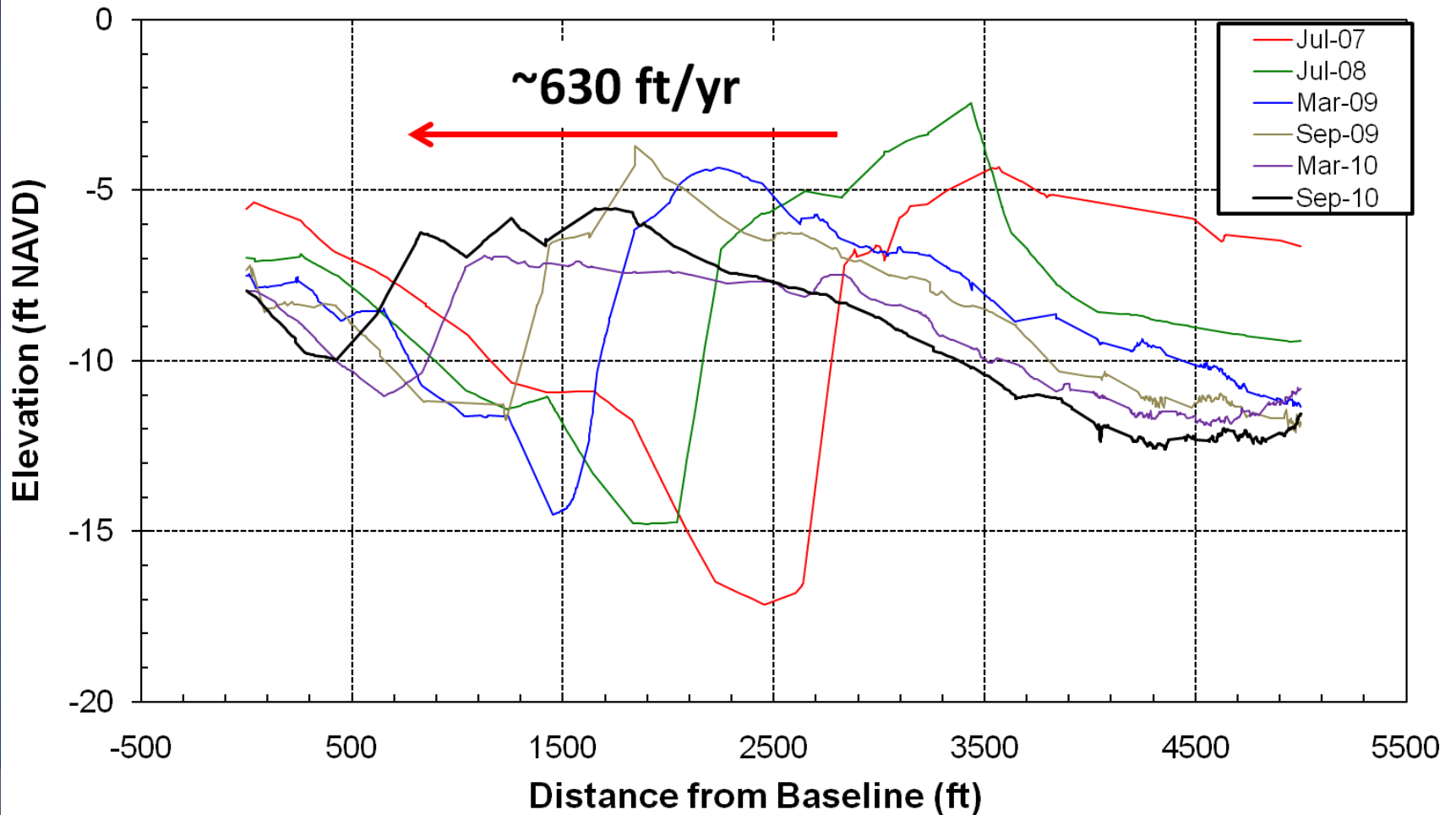


# Changes at Dewees Inlet



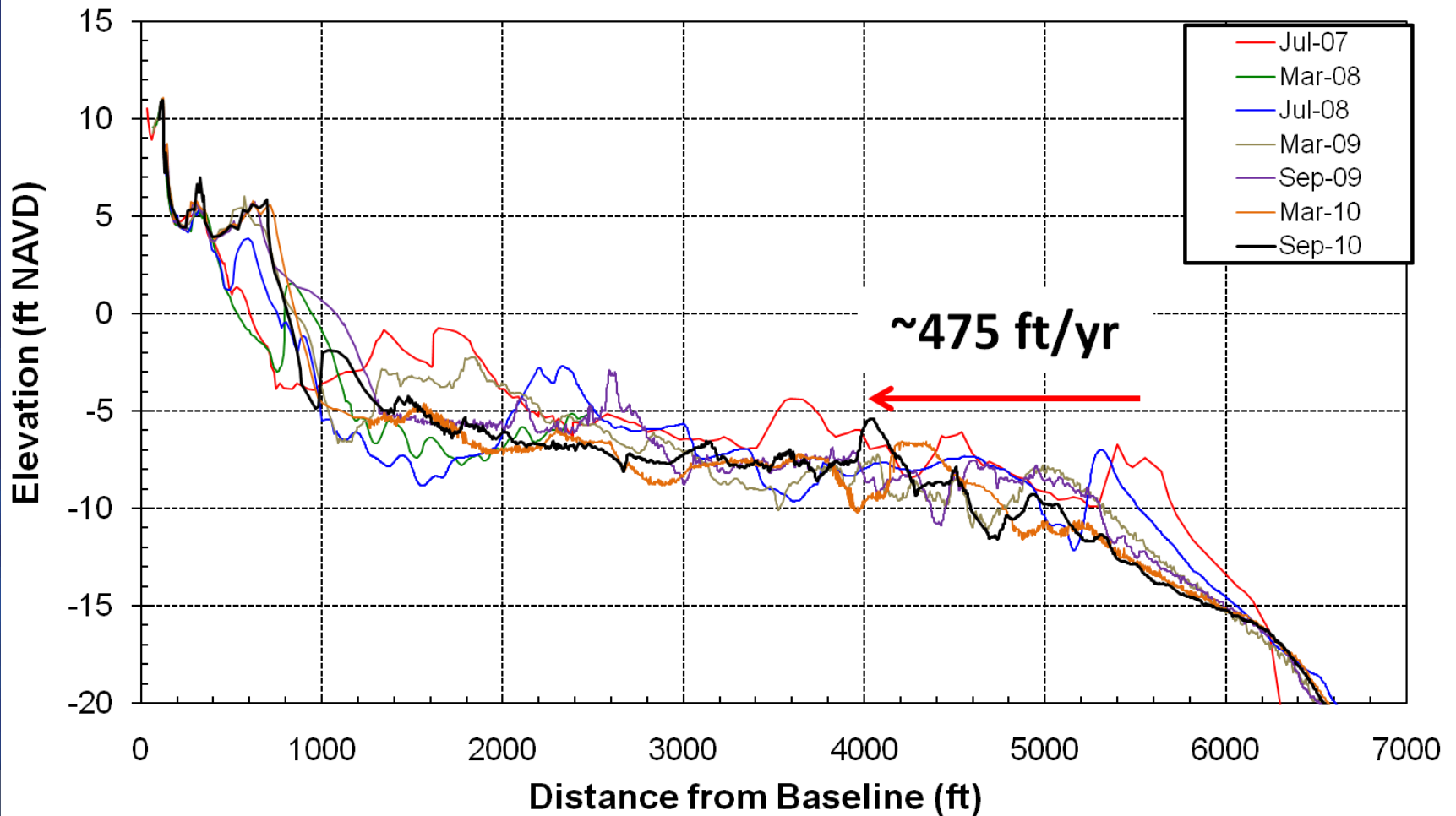
# Changes at Breach Inlet

Station: Shoal Section 01



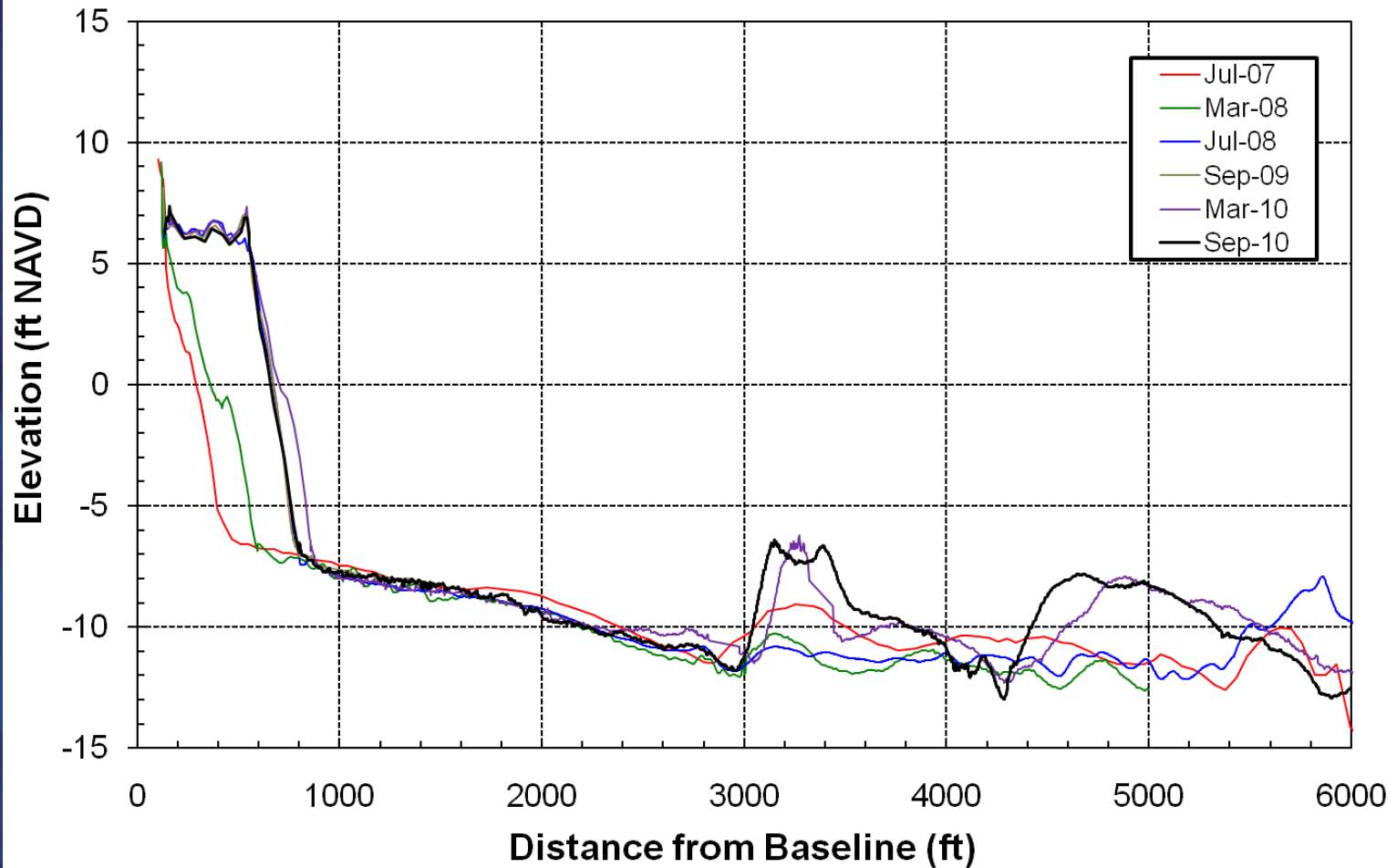
# Changes at Dewees Inlet

Station: 280+00 BEACH CLUB VILLAS

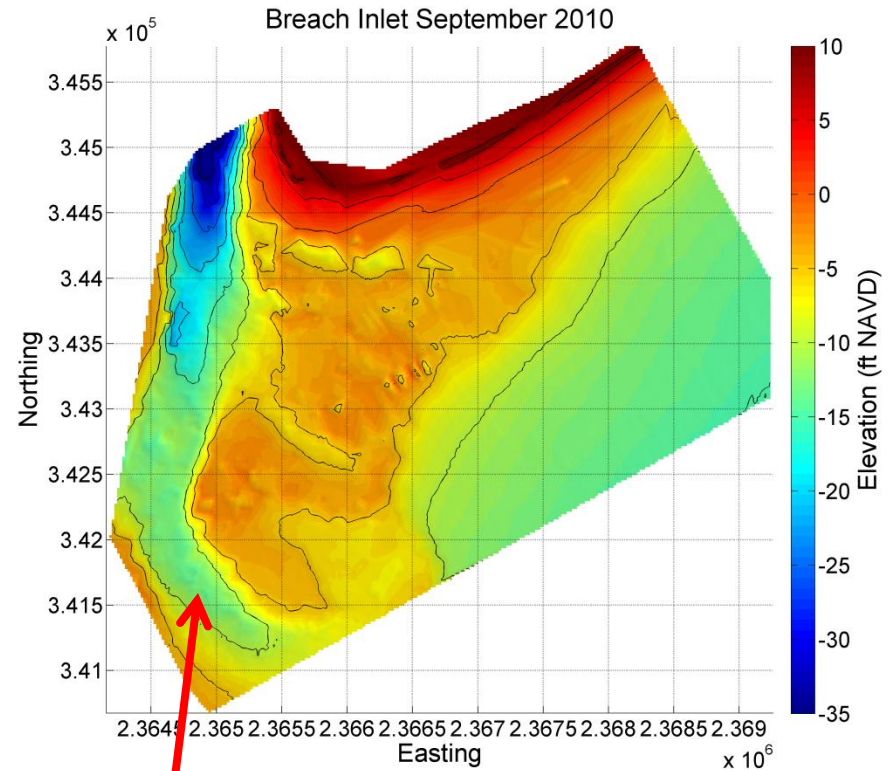
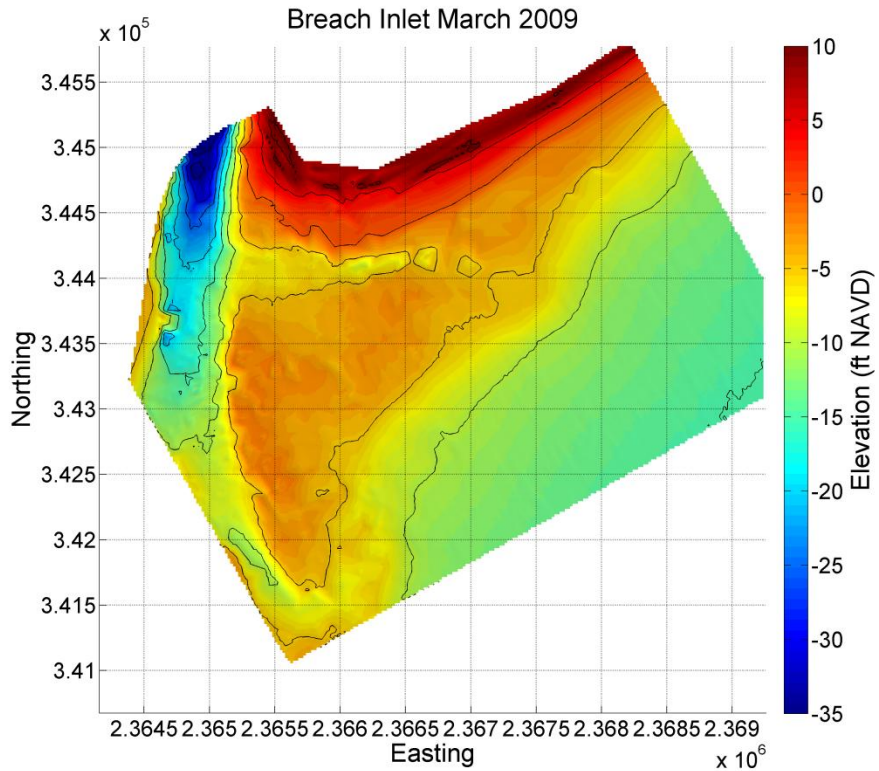


# Changes at Dewees Inlet

Station: 296+00 (Shipwatch)



# Changes at Breach Inlet



**Development of  
New Main  
Channel**

# Changes at Breach Inlet

28 April 2010



# Summary

- September '09 to March '10 showed net erosion of 0.7 cy/ft (26,200 cy)
- March '10 to Sept '10 was accretional, gaining 3.2 cy/ft (117,300 cy)
- Most areas north of 53<sup>rd</sup> Ave were stable or accretional between March and Sept '10
- Beach between Breach Inlet and 53<sup>rd</sup> Ave has gained 213,000 cy (9.6 cy/ft) over the past year



# Status of Permit Application

- Environmental documents were submitted last week
- Permitting agencies have received comments from public and resource agencies (one public letter is still pending until 2/18)
- Agencies are compiling comments, and will seek the City's response to concerns

