

Evolution of the Pensacola Beach, FL Beach Restoration Project



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Pensacola Beach



- Projects History
- Recent Performance
- Significant Events
- 10-Yr Observations
- Current Conditions
- 2016 Renourishment

Pensacola Beach

● Pensacola

ESCAMBIA COUNTY

● Navarre

● Gulf Breeze

● Santa Rosa Island

BEACH FILL
← 8.1 miles →

Pensacola Pass

● Perdido Key

~12 miles

borrow area
(4 miles out)

Gulf of Mexico

Initial Restoration: 2002-2003



- 4.25 million cubic yards
- 8.1 miles
- \$15.9M
 - State FDEP cost-shared
 - \$625,000 in dune revegetation
- Bean-Stuyvesant
 - Hopper dredge *Stuyvesant*



Hurricane Ivan – September 2004



- 14 months after restoration
 - 11-14 ft surge levels (typ.)
- 3 million cubic yards lost
 - Dunes completely destroyed
 - ~60% of sand into upland/downdrift
 - ~40% of sand pushed offshore



Post-Ivan Renourishment: 2005-2006

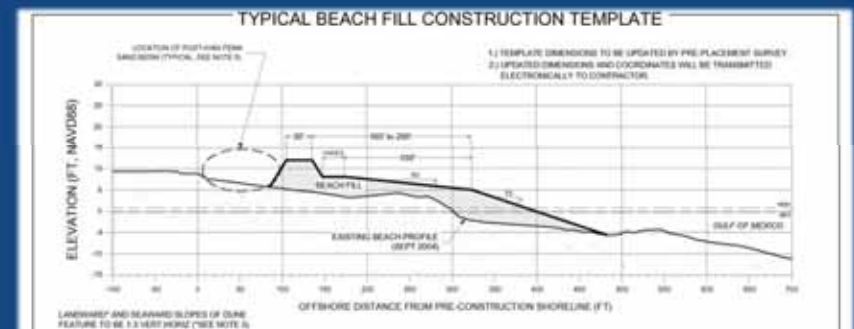


- 3.1 million cubic yards
 - Ivan, Dennis, & Katrina
- 8.1 miles
- \$14.2M – FEMA sponsored
 - \$688,400 in dune revegetation
- Weeks Marine, Inc.
 - Hopper dredge *R.N. Weeks*

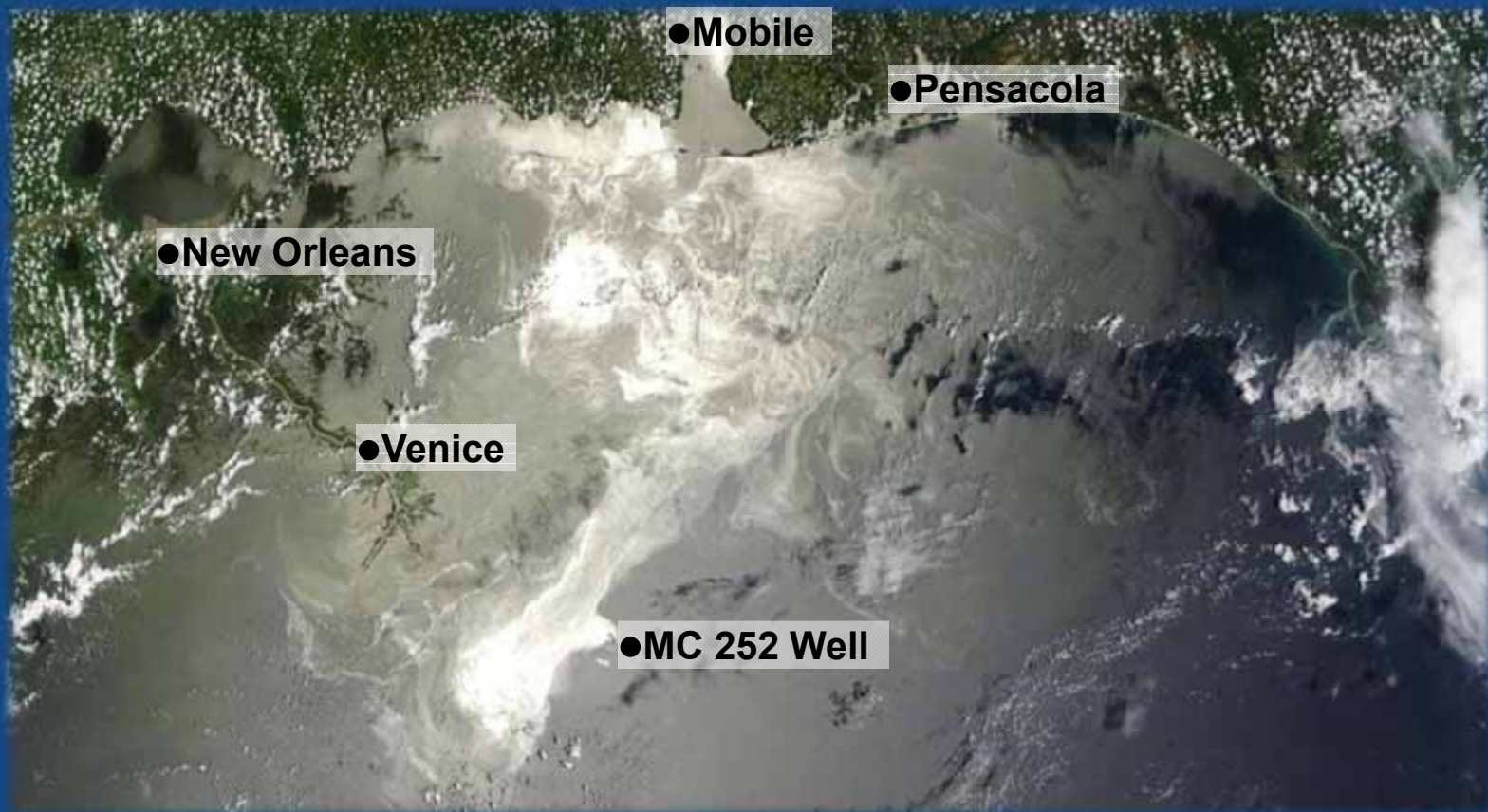


AeroPhoto

Post-Ivan Renourishment: 2005-2006



Deepwater Horizon Oil Spill - 2010



NASA MODIS Terra - 26 June 2010

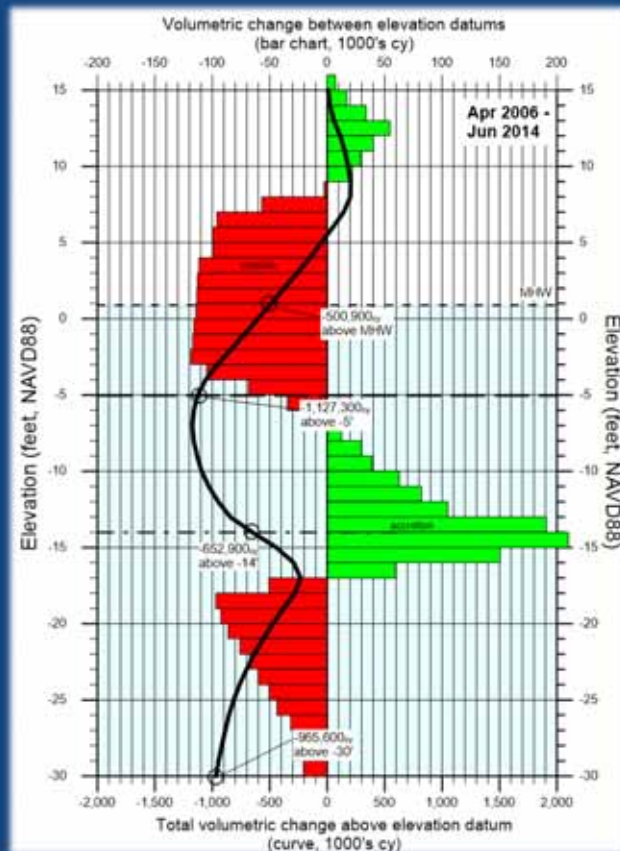
2010 Oil Spill



- Hundreds of pounds of oil and tar product removed
 - Significant beach screening
- Impacts from equipment
- No apparent borrow area fouling



Volumetric Performance



- Dune growth
- -1.3 to -1.5 million cubic yards
 - eroded construction template
 - Hurricanes Gustav, Ike, Ida, and Isaac
- Primary bar growth
- Erosion of Gulfward bar slope

Dune Growth 2006-2015

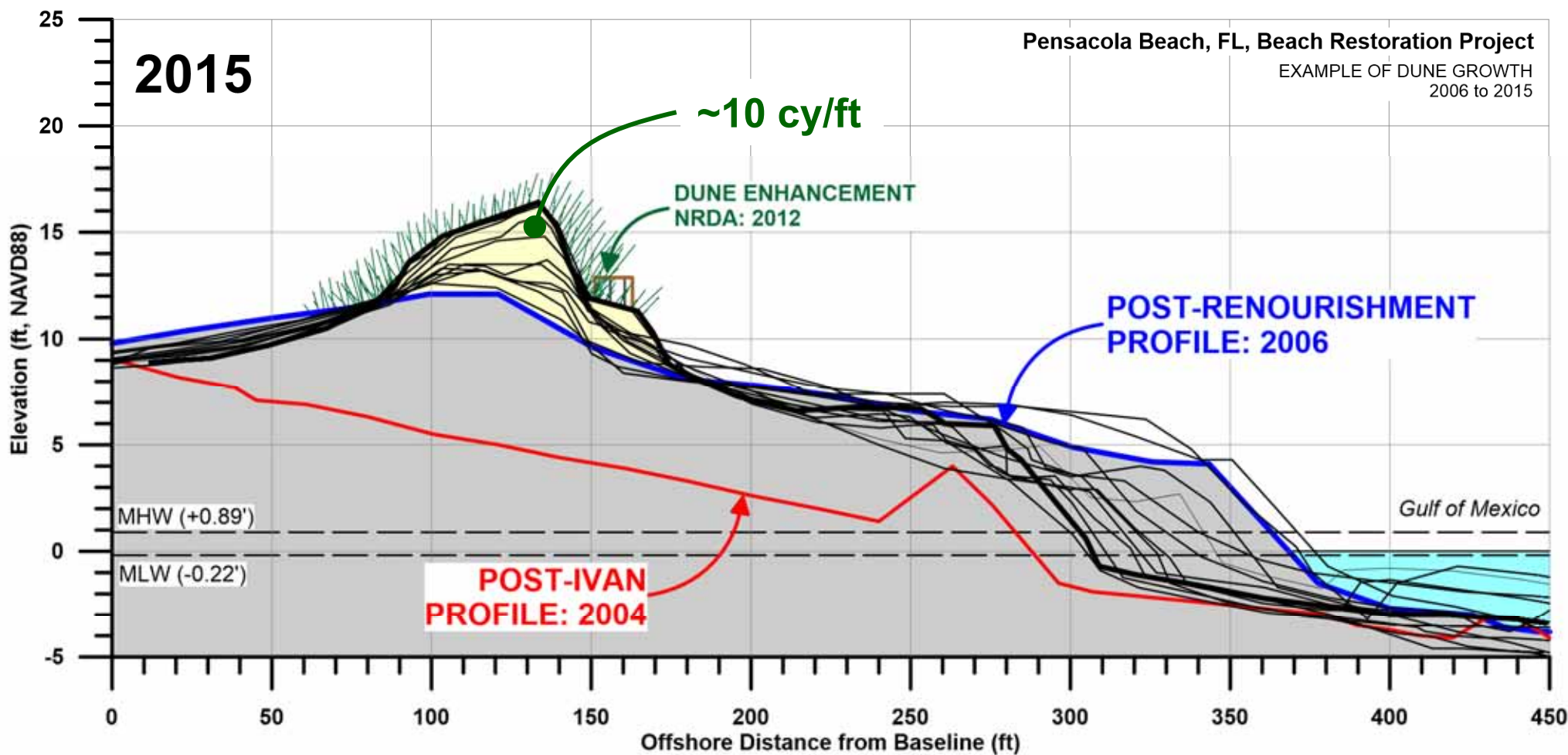
July 2005



May 2015



- Primary dunes lost during Ivan
 - Reinforced by Dennis and Katrina
- Completely reconstructed and revegetated in '05-'06
- Since reconstruction:
 - +210,000 cubic yards of growth
 - ~ 5 cy/ft of added dune volume (avg.)
 - +3 to +4 ft of elevation gain



Compression of Beach Space

- *Slowly growing dunes and a slowly eroding shoreline...*



- Recreational space has decreased by about 40%, due to equilibration, dune growth, and recession

...and beach cusps...



Beach Cusps



July 2009 WSRE



April 2010

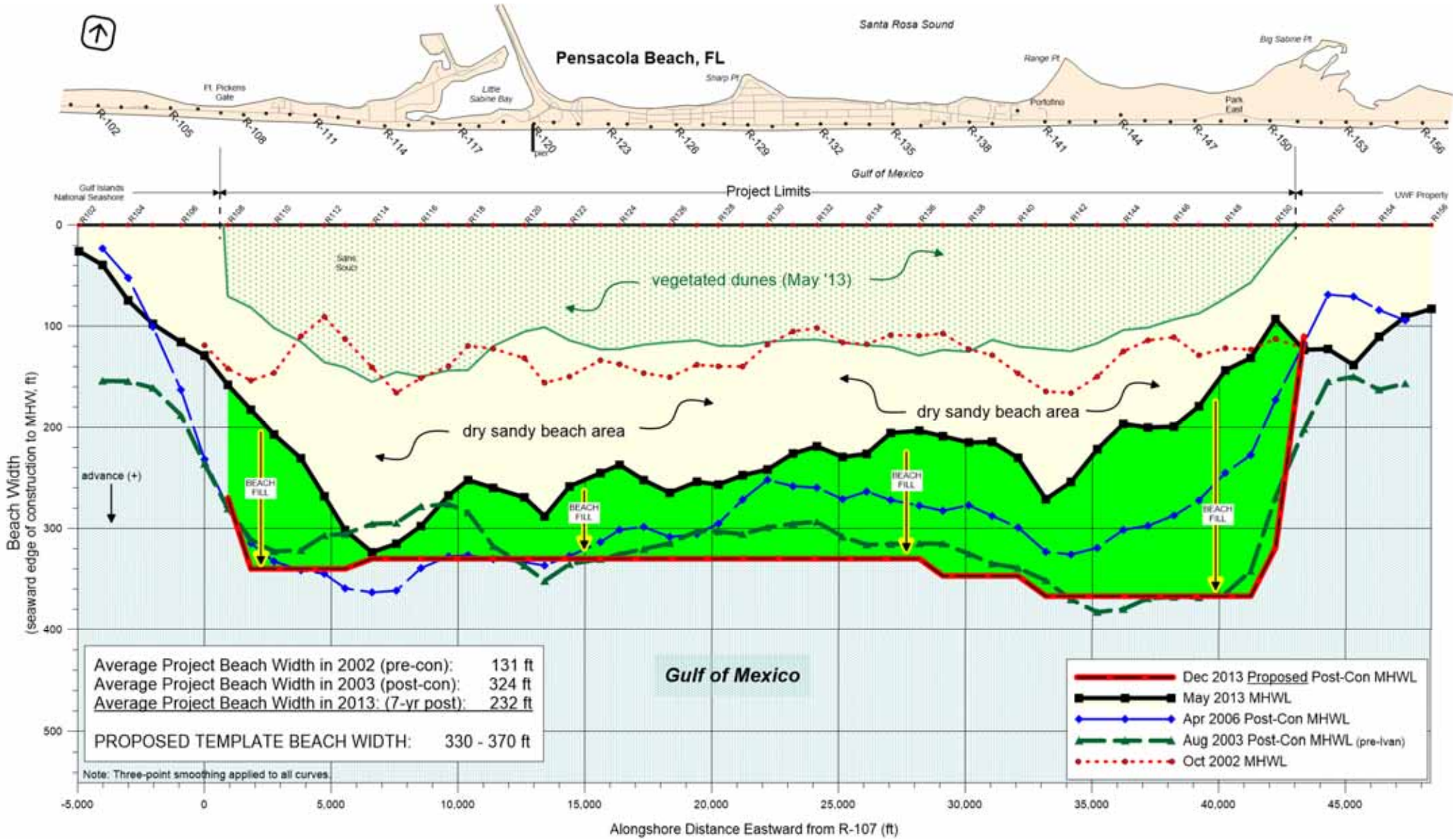


October 2010

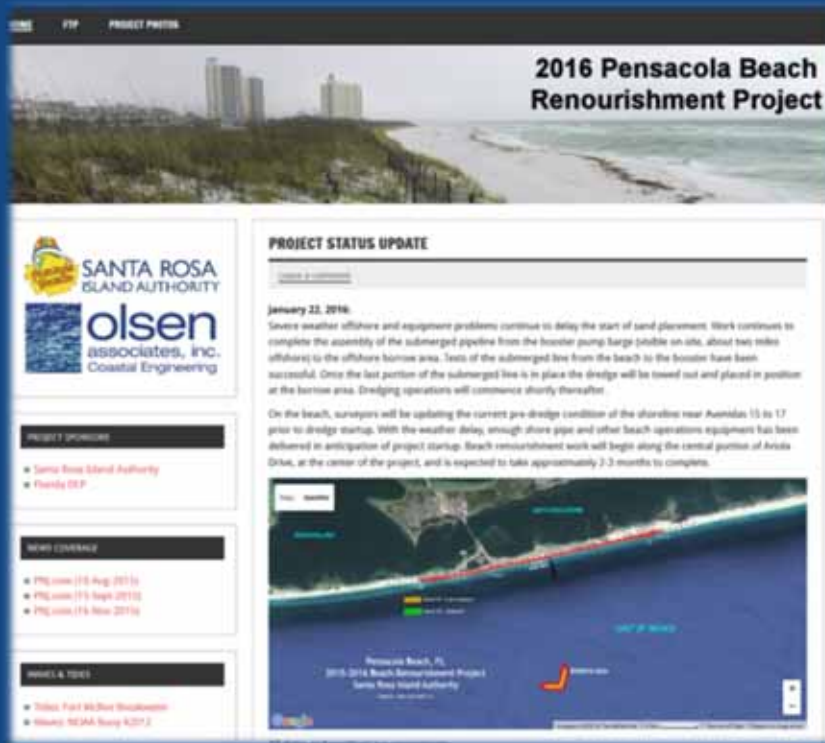
2016 Maintenance Renourishment



- 1.75 million cubic yards over 8.1 miles
 - Weeks Marine, Inc.
 - R.S. Weeks – cutterhead-suction/pipeline dredge
 - ~4-8 miles of submerged and shore pipeline



Construction



- Commencement upcoming
 - 1.75 million cubic yards
 - 8.1 miles
- \$15.3M
 - 50% cost-share with FDEP
- Weeks Marine, Inc.

THANK YOU



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