

Photo on 13 June 2016



Nags Head Shoreline Management Committee Meeting

12 July 2016

Project Schedule for 2018 Re-Nourishment

2016		
Month 1	May	Initiate work
Mon 2-5	Jun-Sept	(1) Define the ideal (target) beach condition (2) Conduct borrow area survey & obtain borings (3) Develop renourishment requirements, dune stabilization alternatives, and initiate engineering studies
Mon 6-8	Oct-Dec	Design, cost estimates, field work, initiate permit liaison
2017		
Mon 9-13	Jan-May	(1) Prepare supporting environmental documents (2) Complete preliminary design (3) Pre-application meetings with regulatory & resource agencies
Mon 14	Jun	Submit permit applications with supporting documents
Mon 15-20	Jul-Dec	Permit liaison to secure permits in time
2018		
Mon 21-24	Jan-Apr	Receive permits / prepare plans and specifications, request bids, receive bids, select contractor, construction preparation
Mon 25-28	May-Aug	Construction and construction administration

Outline of the Presentation:

Goal – To Define A “Target” Beach Condition for the Future

1 – Current Beach Condition – 2015

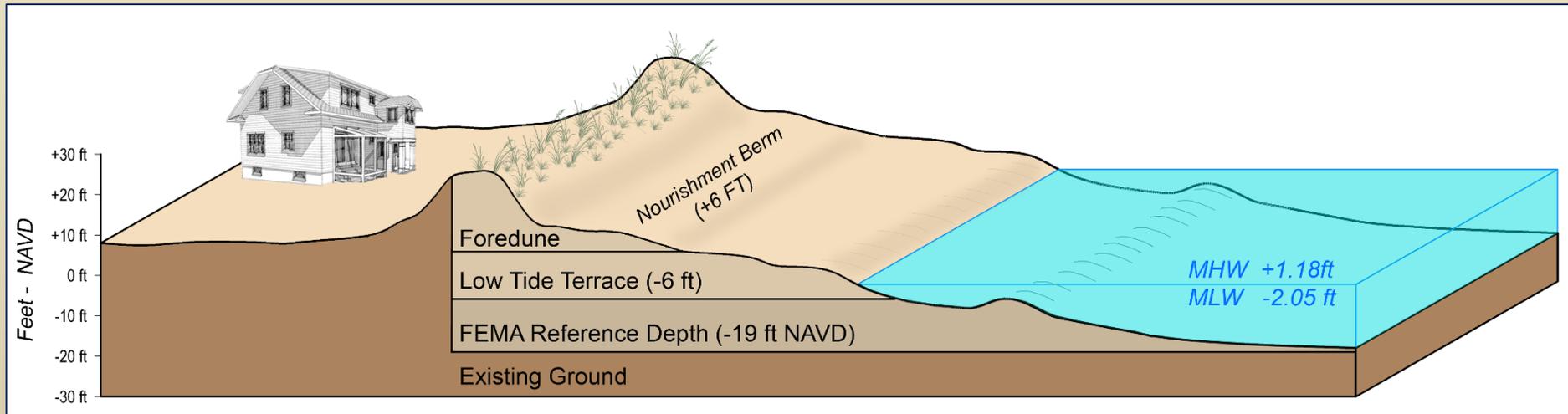
2 – What we measure

- Height and size of dunes
- Width of “Dry-sand” beach
- The Underwater Sand Box

3 – Work Progress and Path Forward for 2018 Re-nourishment

4 – Relationship to a “30-yr” plan and Target Beach Condition

Beach Condition Analysis – “The Littoral Sand Box”



Lens 1 – **Foredune** – From the ~crest of dune to +6 ft NAVD*

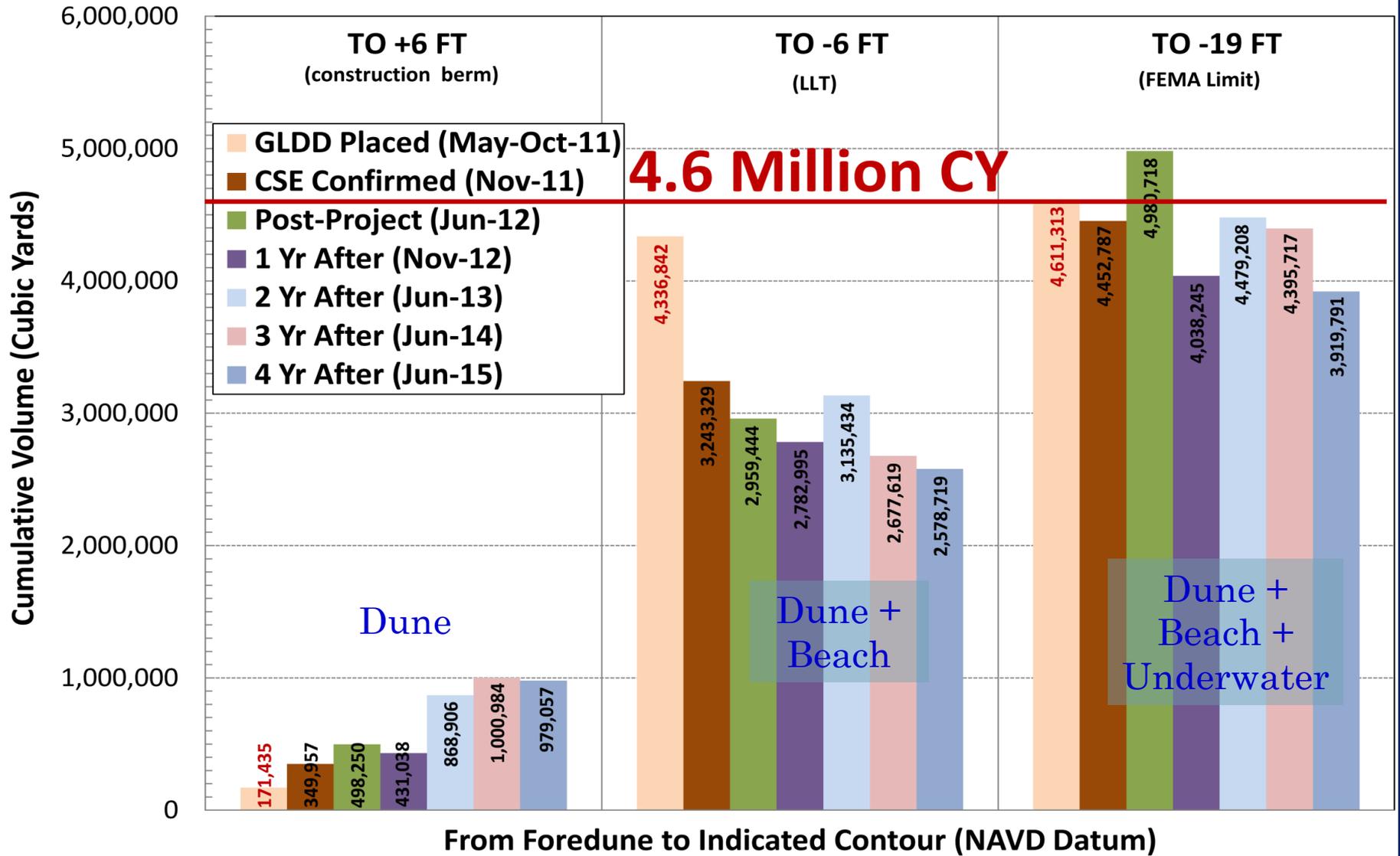
Lens 2 – **Beach** – Between +6 ft and -6 ft NAVD

Lens 3 – **Underwater** – Between -6 ft and -19 ft NAVD

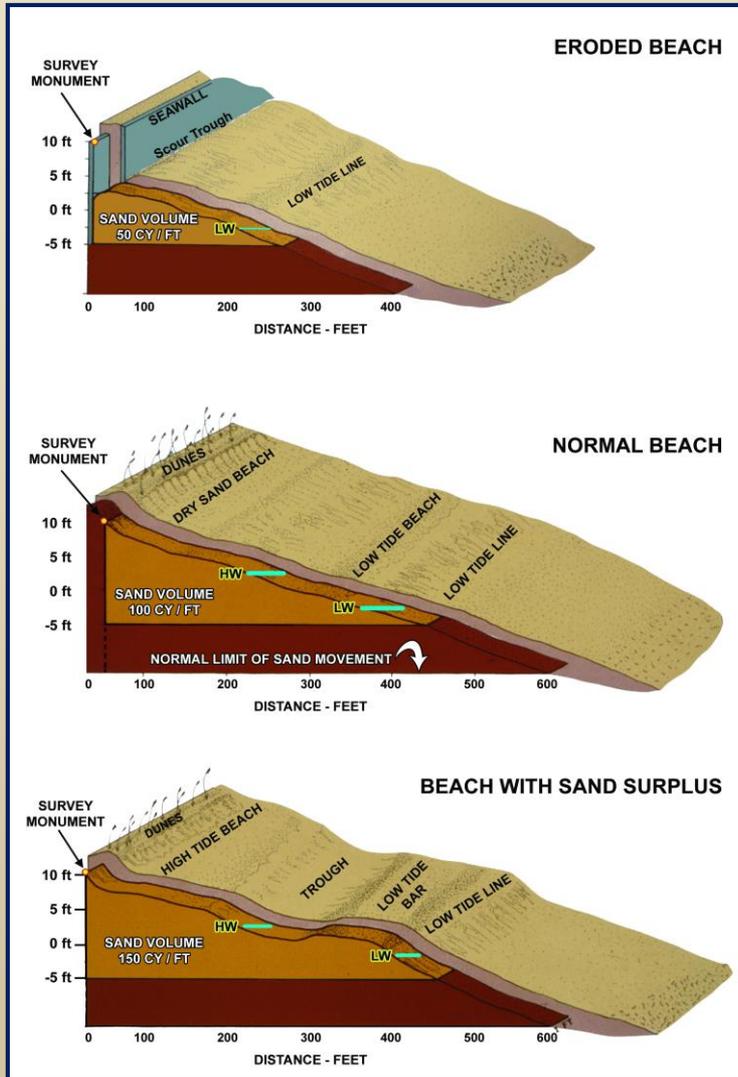
*NAVD-North American Vertical Datum of 1988 = ~mean sea level

Project Performance – Volume Changes

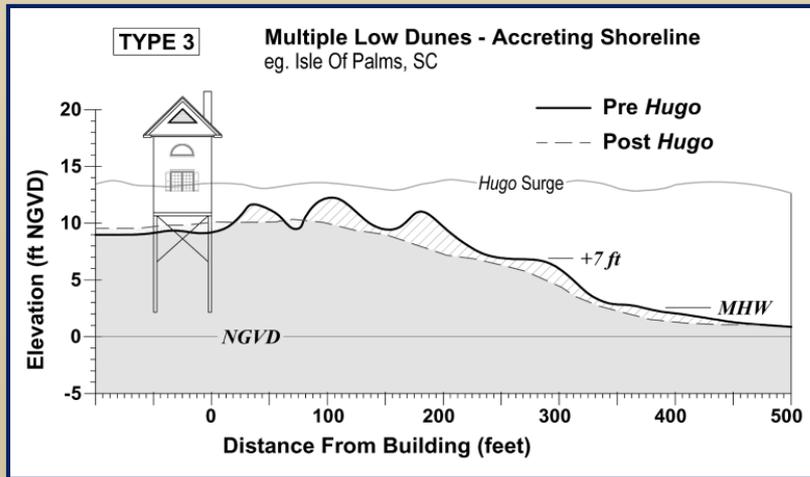
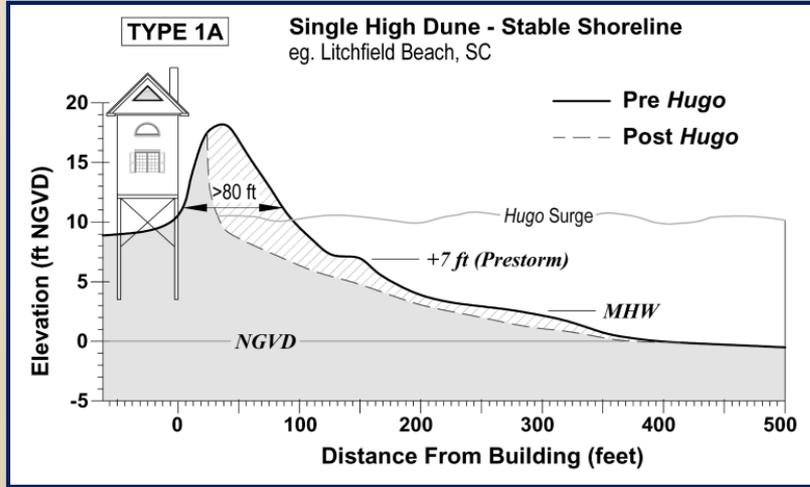
Nags Head Cumulative Beach Volume Changes (Relative To November 2010 - Pre-Project)



Beach Condition Analysis – “The Littoral Sand Box”

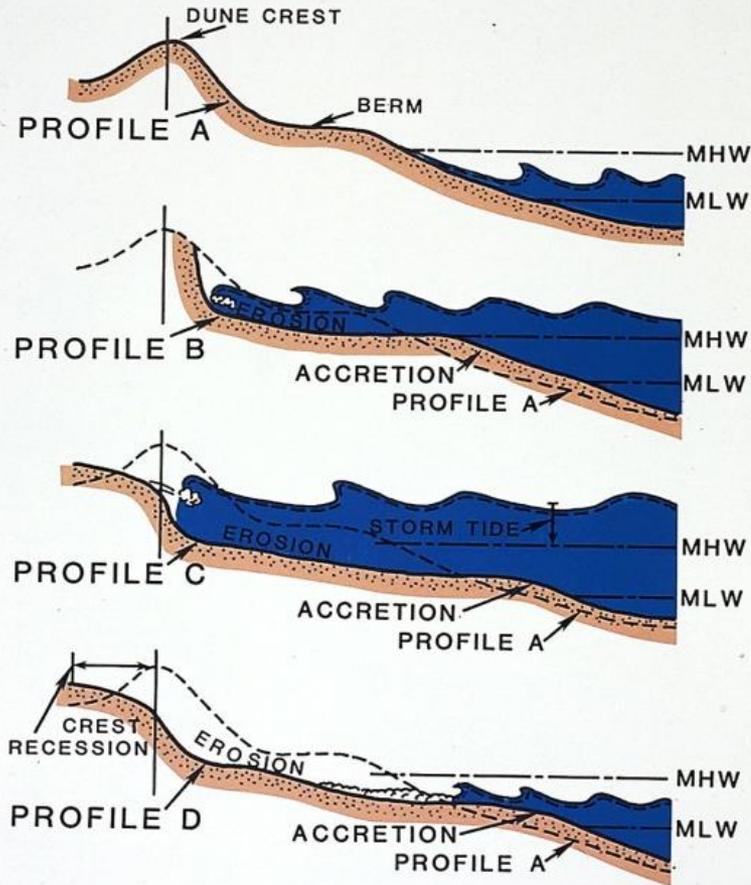


Beach Condition Analysis – “The Littoral Sand Box”



Formula for Sustainable Developed Coasts

High Dunes
+ Wide Beaches
= Less Damage



After CERC, 1973

Resource: www.asbpa.org



At Nags Head – *Post 2011 Project*

Wide Beaches → Growing dunes

Wide Beaches → Lower wave run-up in storms

Wide Beaches → Fewer washovers at street ends

Wide Beaches → Lower public maintenance costs

Wide Beaches → Higher property values/tax base

@ Low tide

March 1985



Myrtle Beach 30-yr Improvement



February 1987



1st Locally
Sponsored
Nourishment
In SC

March 1985



Myrtle Beach – 30 yrs later

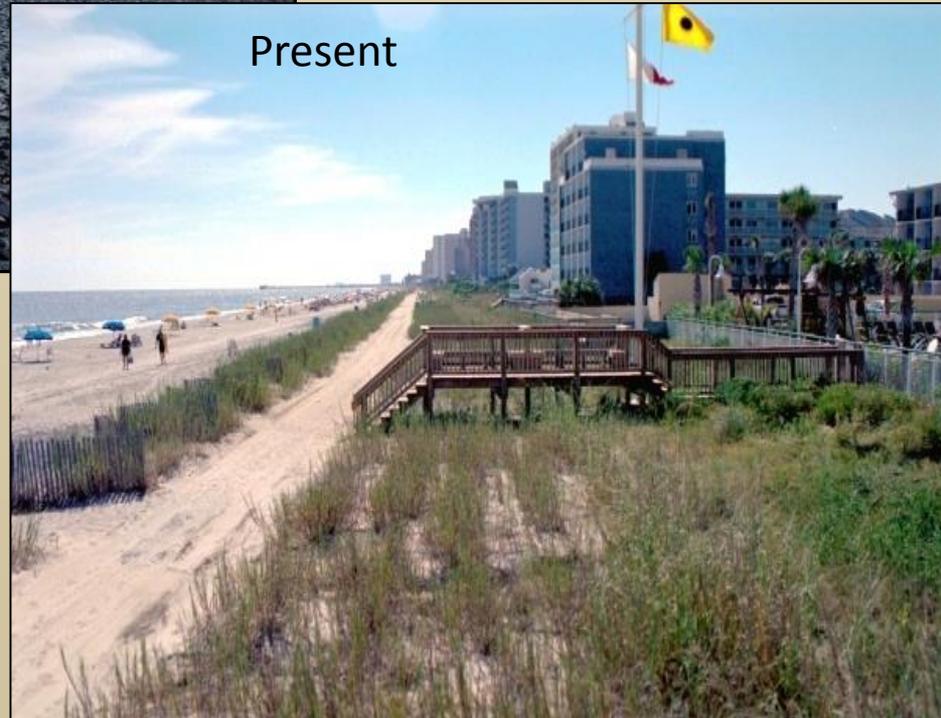
February 1987



Four Nourishment
Events – 1986 to
Present

Federal Project
1997 - 2047

Present

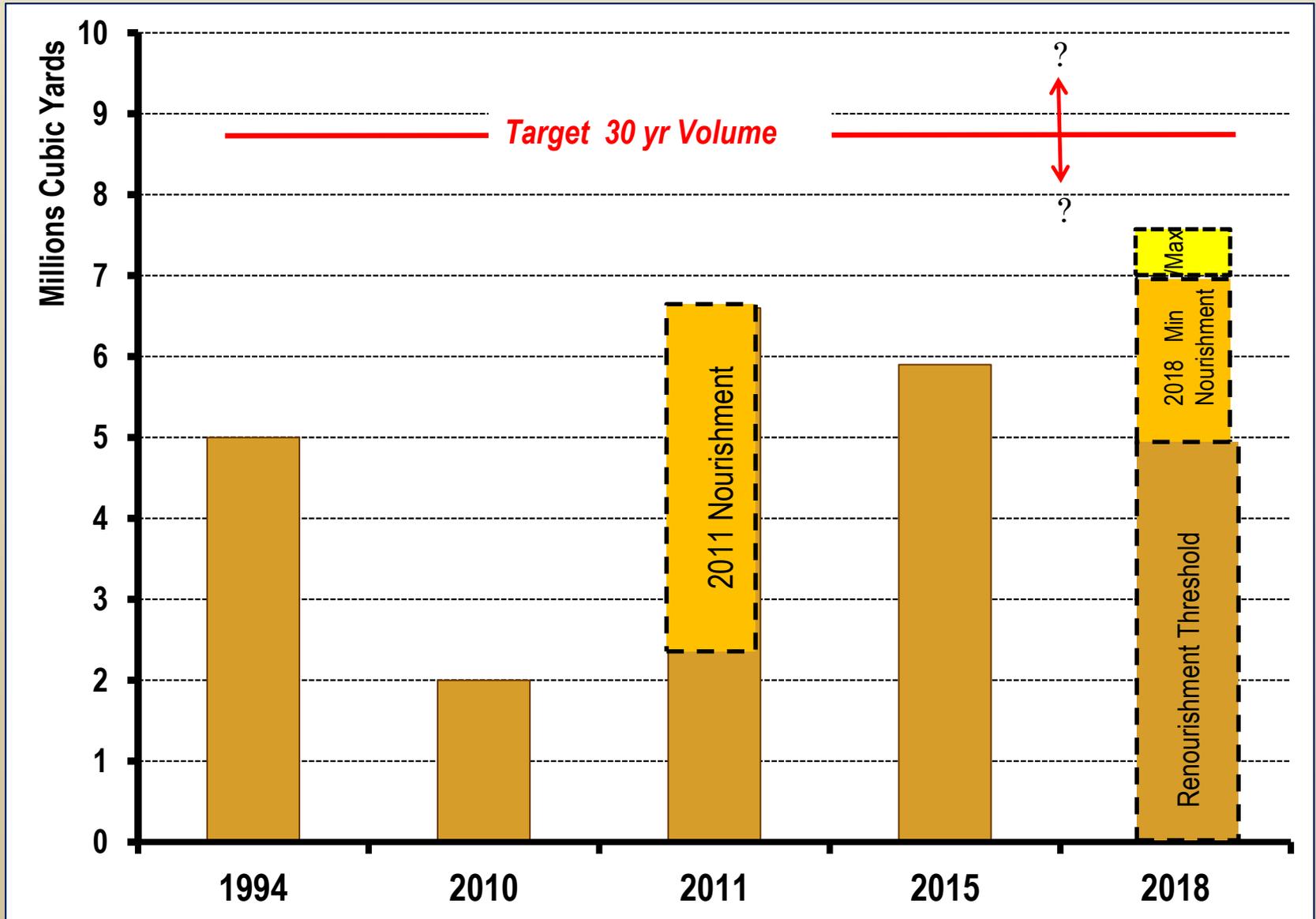


- Seawalls Buried
- Protective Storm Berm
- 100 ft Wider Beach
- 100 Acres Beach habitat gained

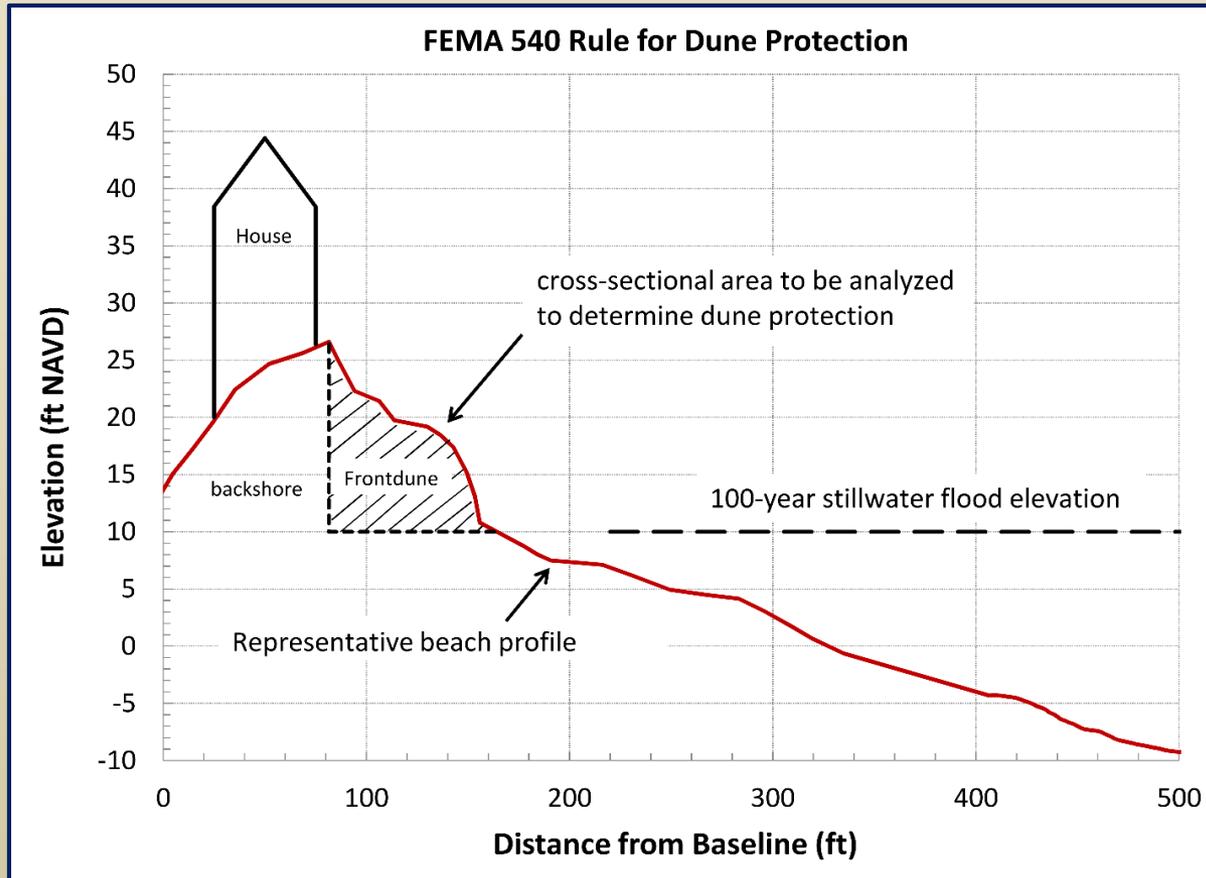
Part 2 – Target Beach Condition

- Storm damage protection
- Recreational beach width
- Sand deficit in the “sand box” to a target condition

Nags Head Sand Volume in the System

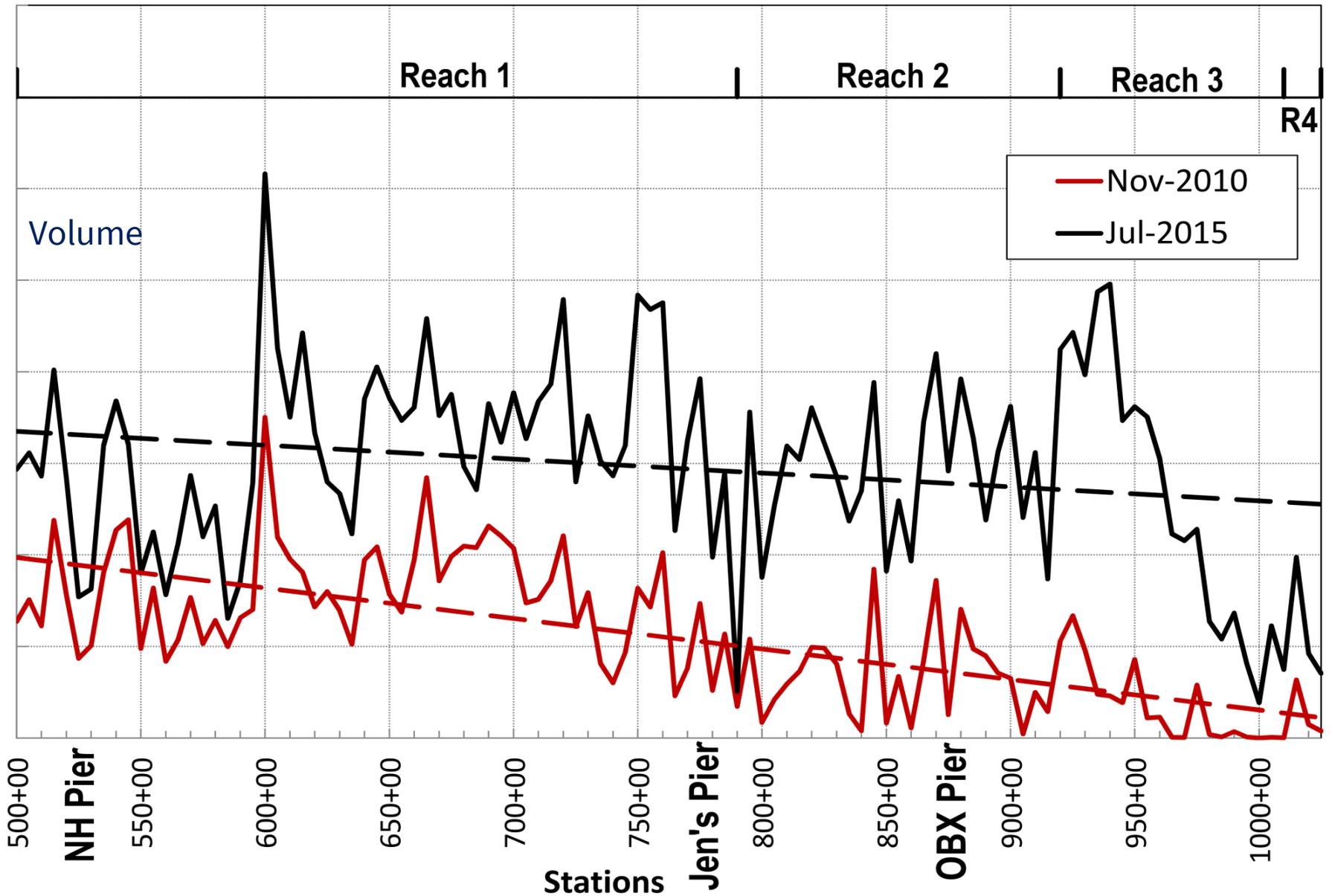


FEMA 540 Rule for Dune Protection



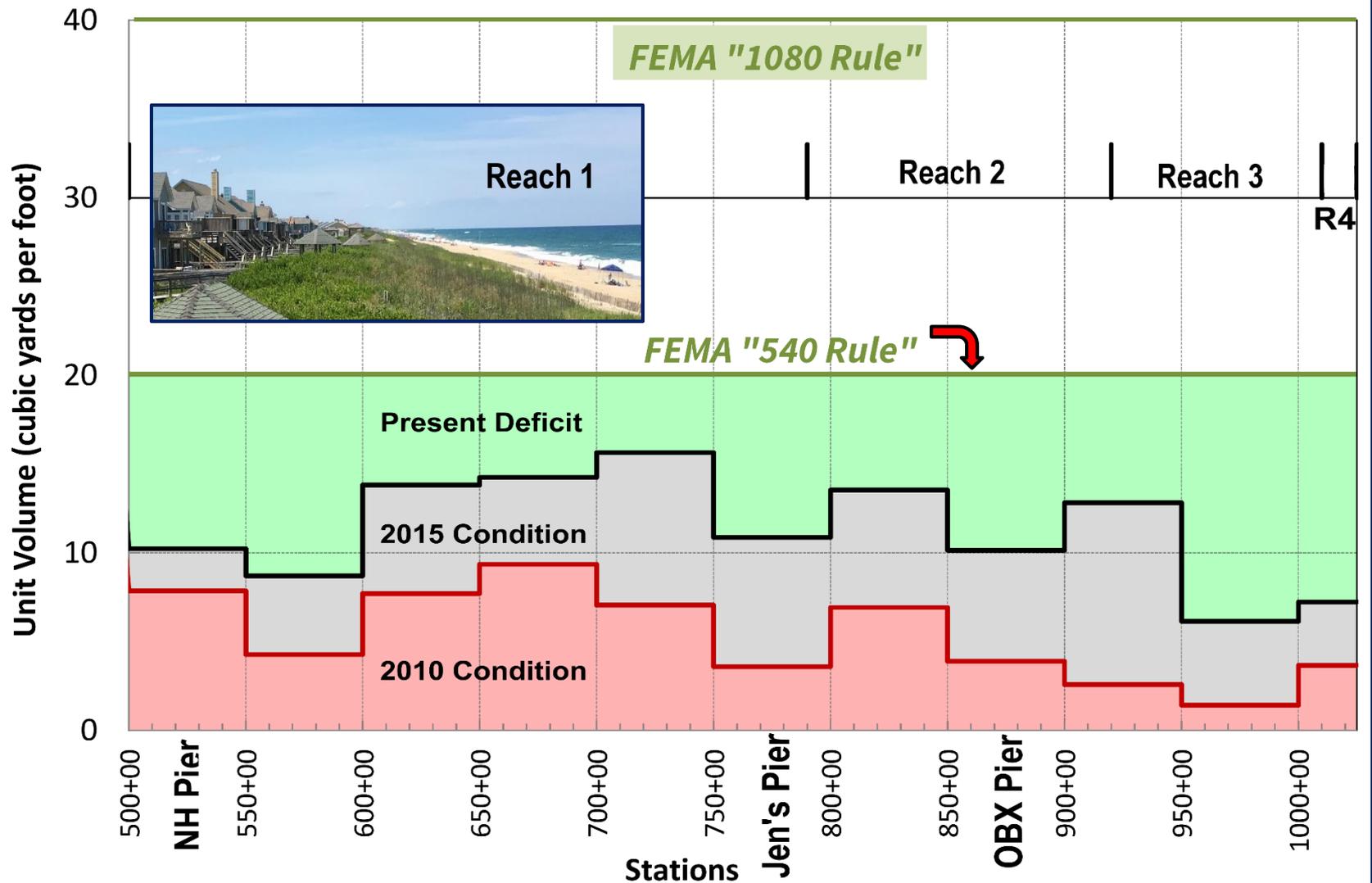
“Primary frontal dunes will not be considered as effective barriers to base flood storm surges and associated wave action where the cross-sectional area of the primary frontal dune, as measured perpendicular to the shoreline and above the 100-year stillwater flood elevation and seaward of the dune crest, is equal to, or less than, 540 square feet (20 cubic yards per foot).” *[FEMA 53 FR 16279, May 6, 1988]*

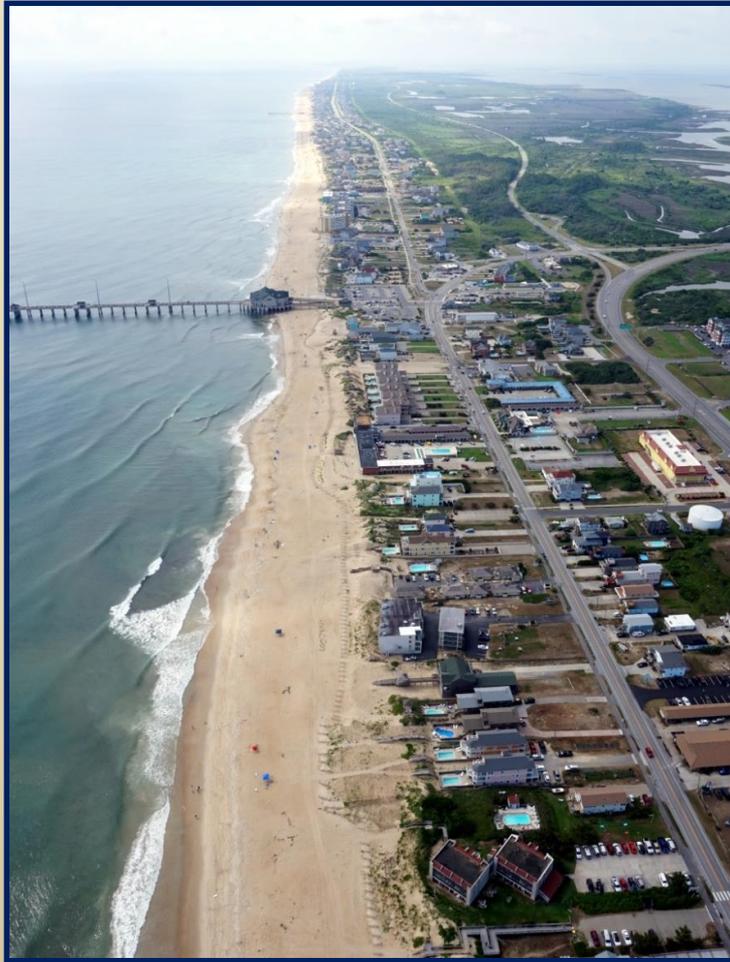
Natural Growth of Dune



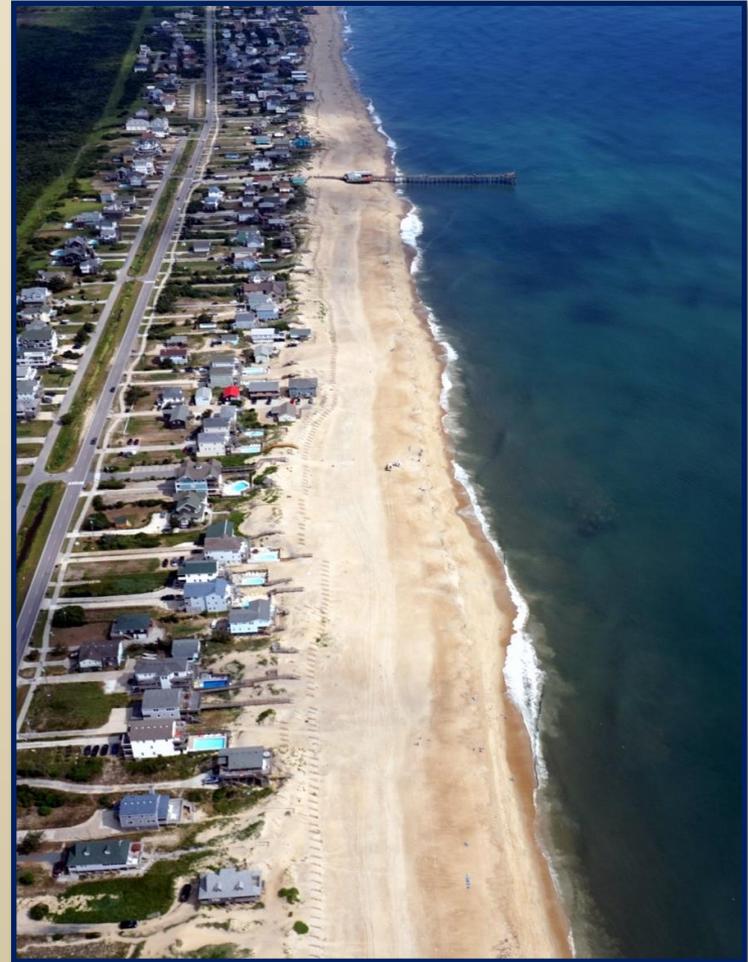
Nags Head Dune Volume Before/After 2011 Project

Nags Head Dune Volume Compared to FEMA 540 Rule
From Dune Crest to +10 FT NAVD



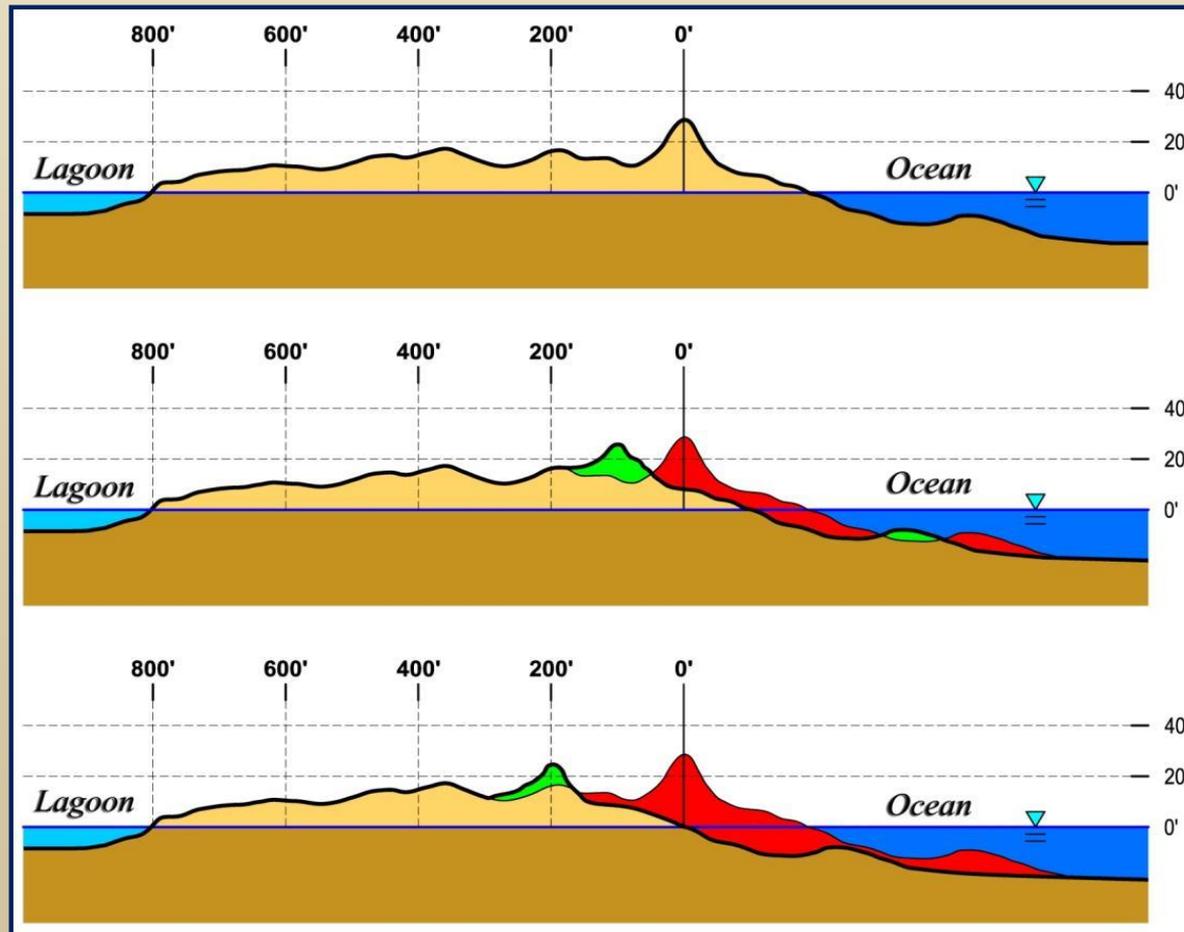


**Nags Head at Jennett's Pier
June 2015 looking southwest**



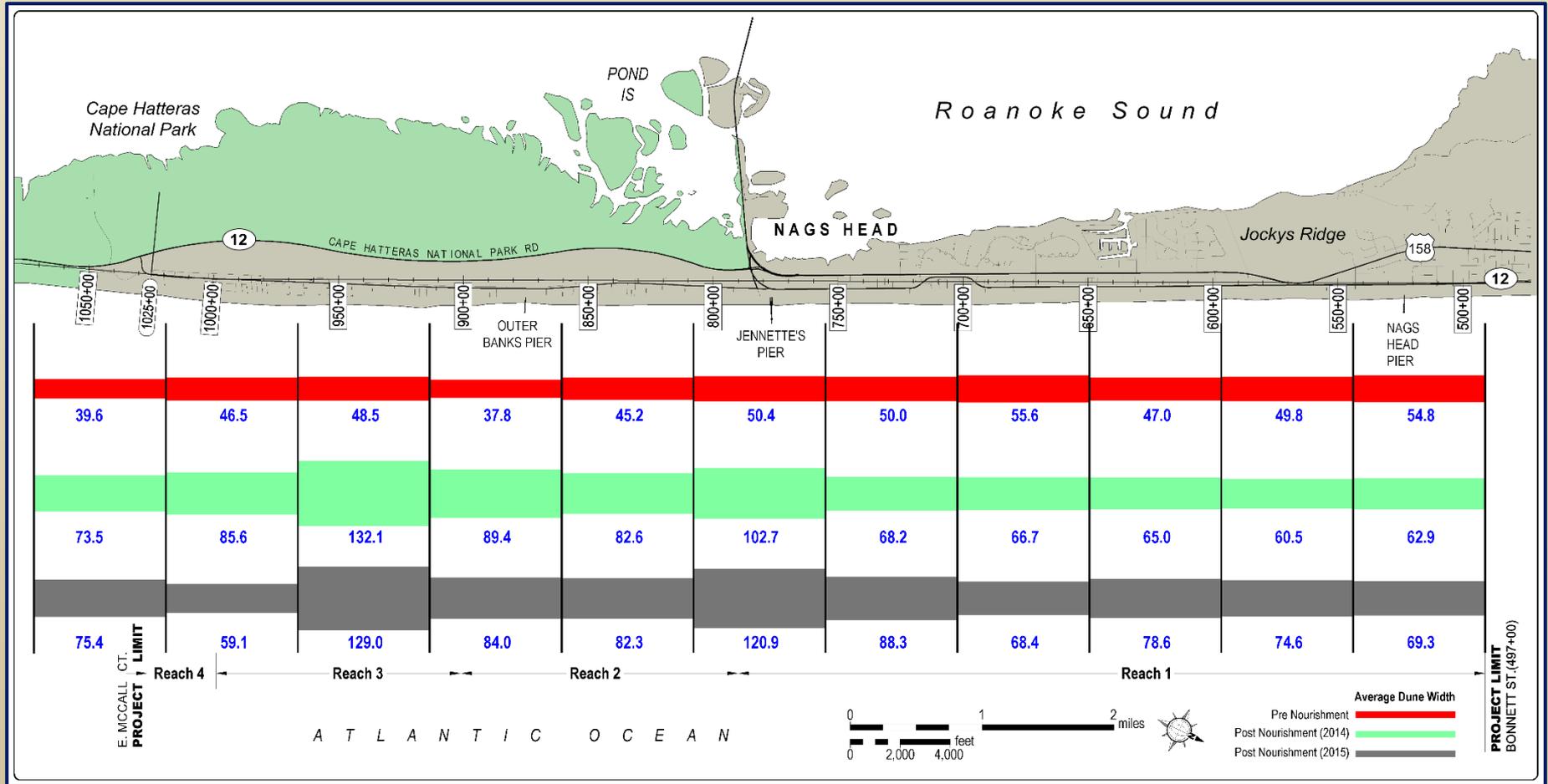
**South Nags Head near Outer
Banks Pier June 2015 looking
northeast**

“The Essence of the Beach Restoration Debate is Whether to Allow Erosion to Proceed and Abandon Existing Homes, Businesses & Infrastructure or Replace the Lost Sand in the Red Zone.” CSE Primer 2011

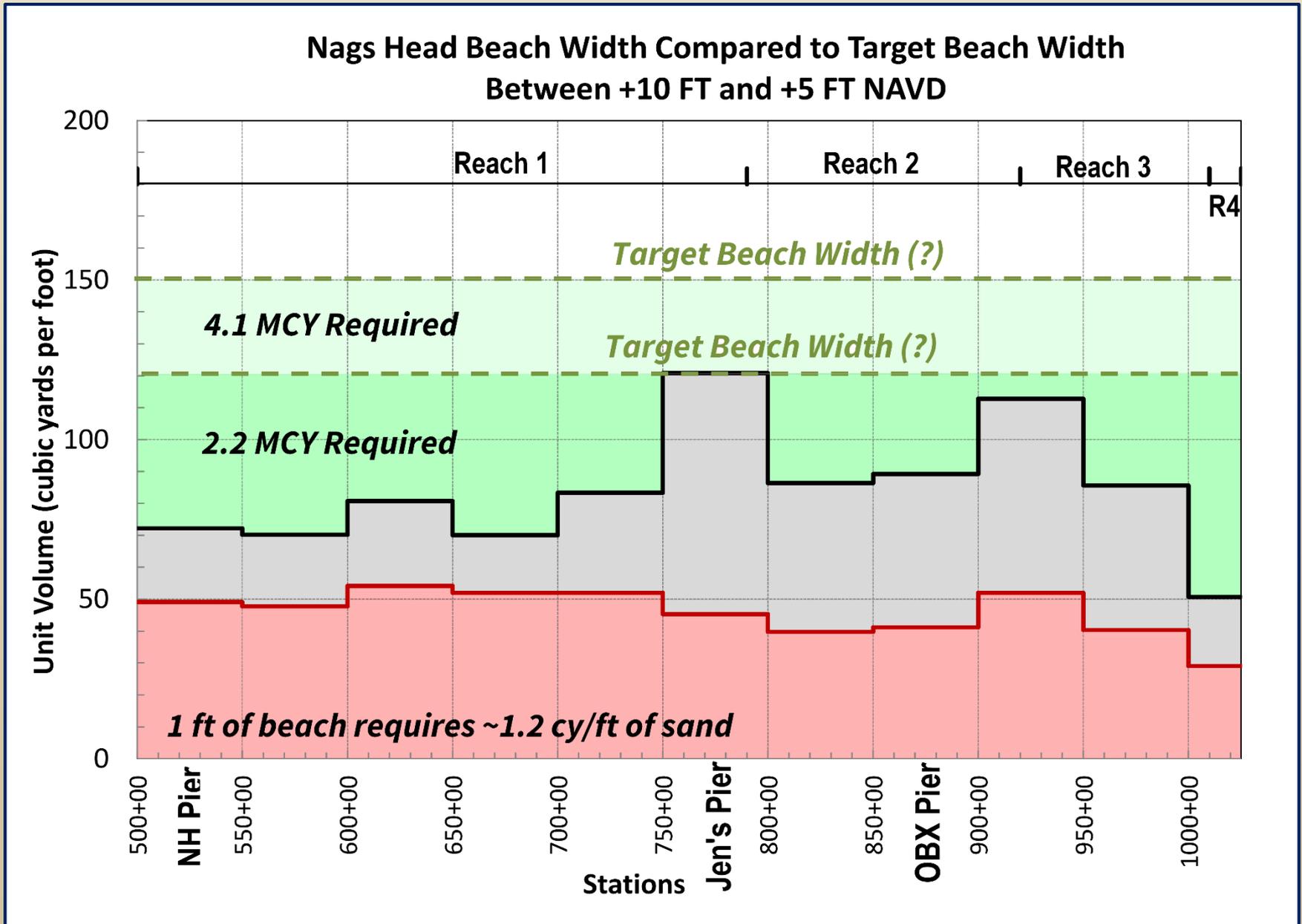


Nags Head Beach Width Before/After 2011 Project

From CSE 2015 Monitoring Report



Nags Head Beach Width Before/After 2011 Project



Part 3 – Work Progress and Path Forward for 2018 Re-nourishment

- Field work updates – borrow areas
- References for public access
- Determine project objectives and scale
- Initiate preliminary design and coastal engineering study
- Initiate permit liaison and document preparation

Discussion