



Wiggins Pass Straightening Implementation: Construction, Monitoring and Inlet Management

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Straightening Wiggins Pass Implementation Topics

Phases

- The Project
- Construction
- 1-Year Monitoring Results
- Inlet Management

Areas of Special Attention

- Straight Channel & Boating Ergonomics
- Flood Channel Relocation & Environmental
- Barefoot Beach
- Rock Substrate Mod
- Long Term Plan



Collier County Objectives

- Provide a safe channel for boating
- Address erosion at Barefoot Beach Park
- Lengthen the dredge cycle and accomplish it with the least effect on the environment
- Provide a solution that is economically effective

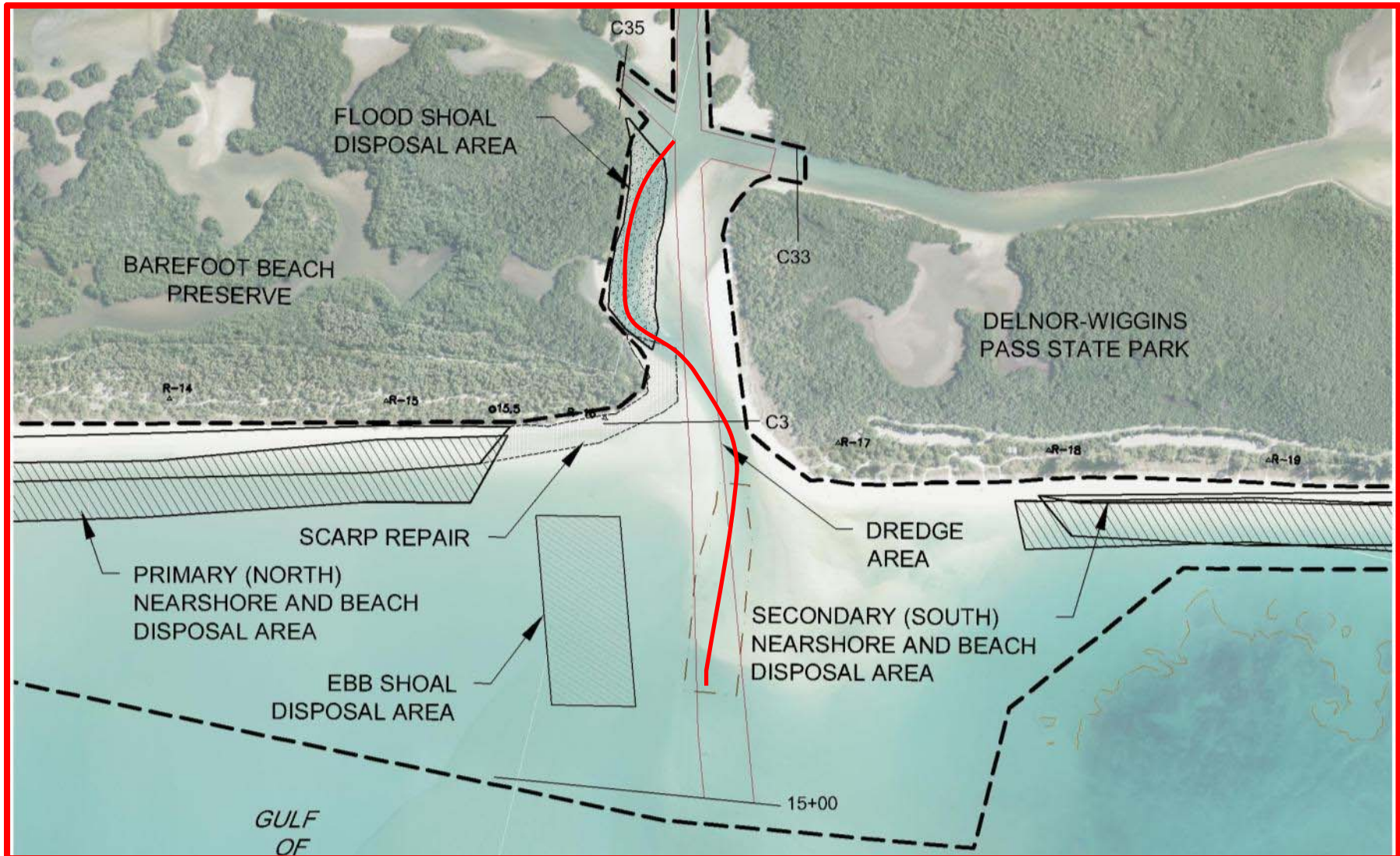


Construction

- Initial construction – 2013 Total 107,000 cy plus clean up
 - Dredge compatible sand from ebb channel (66,000c.y.)
 - Dredge compatible sand from flood channel (34,600c.y.)
 - Dredge incompatible sand & dispose offshore pit (6,670c.y.)
 - Build beach & scour repair with compatible sand (66,060c.y.)
 - Fill north meander with flood compatible sand (28,000 c.y.)
- Intermediate channel dredging (2015)
 - Side cast about 9,400 c.y to the north when needed



Old vs New Alignment –Boater Ergonomic



Boats parade on Completion

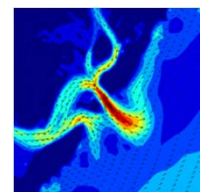
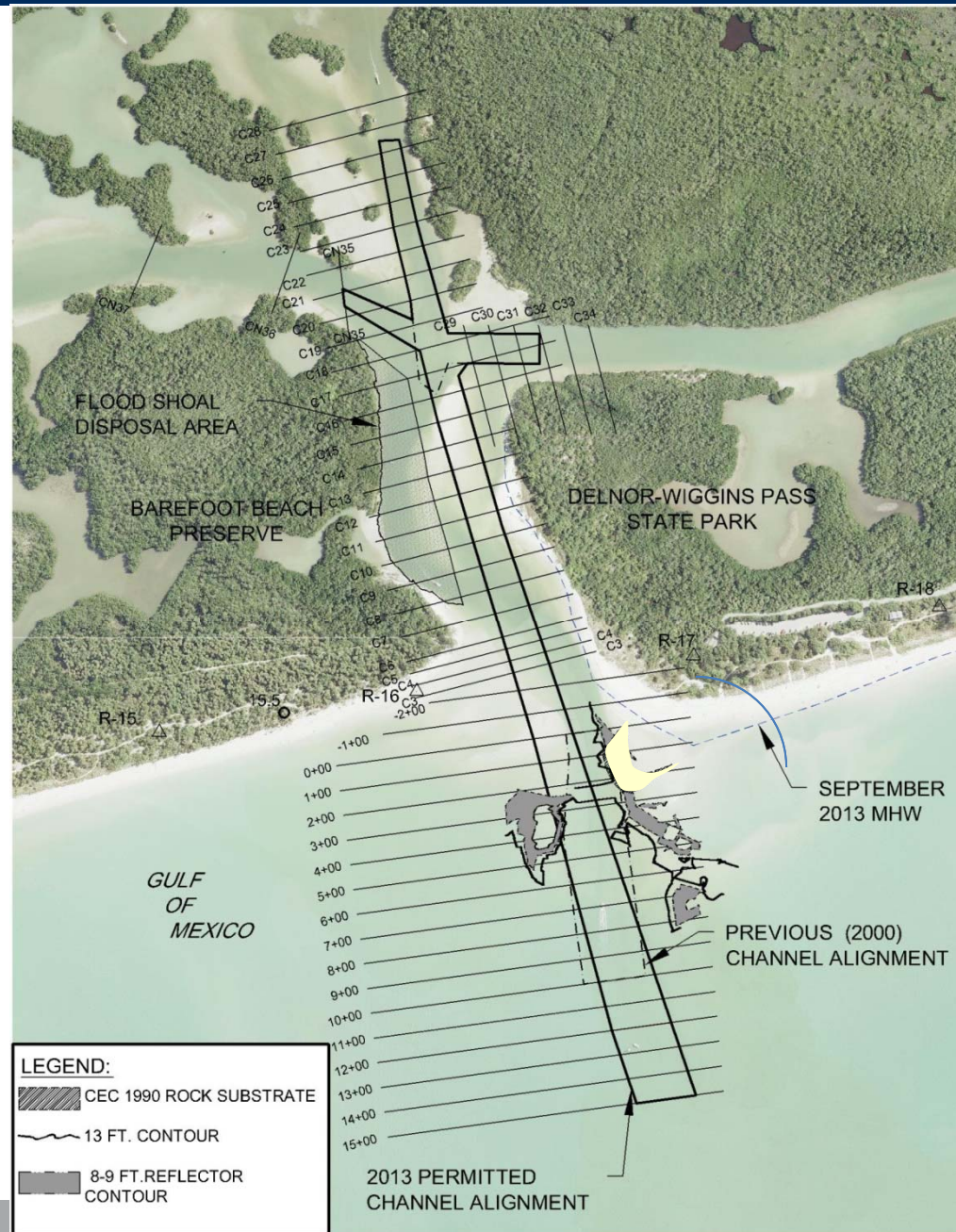




Post-Dredge Conditions May 2013

- After Land Phase

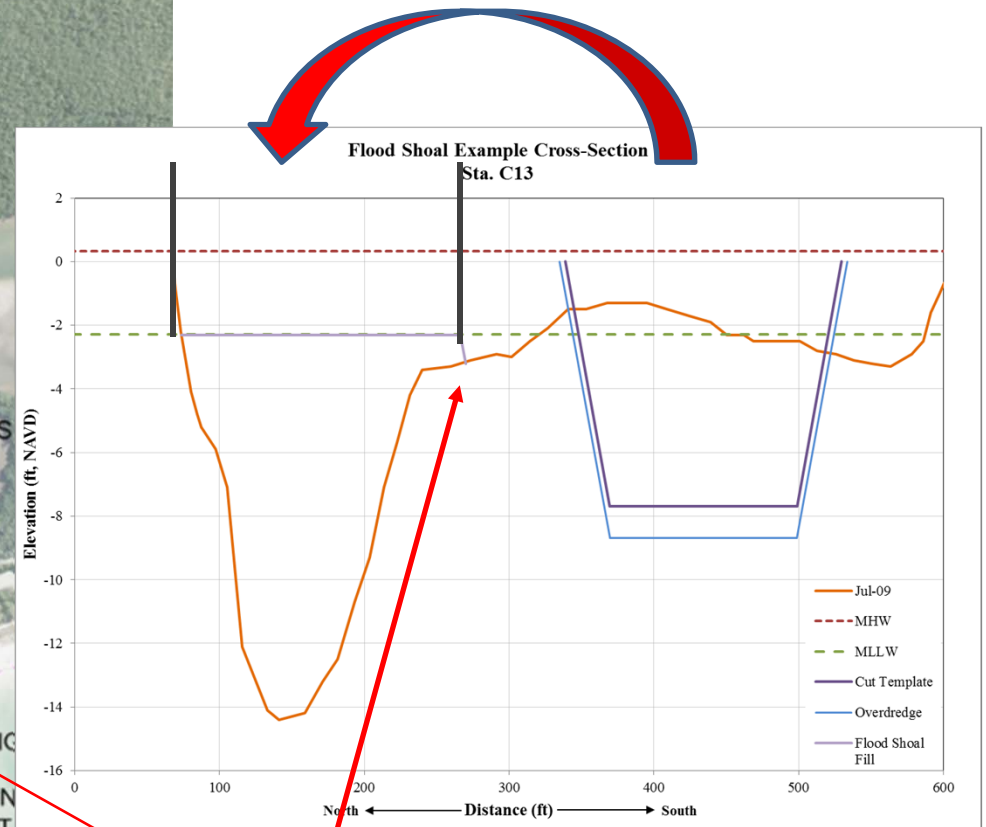






Dredging and Sample Rock



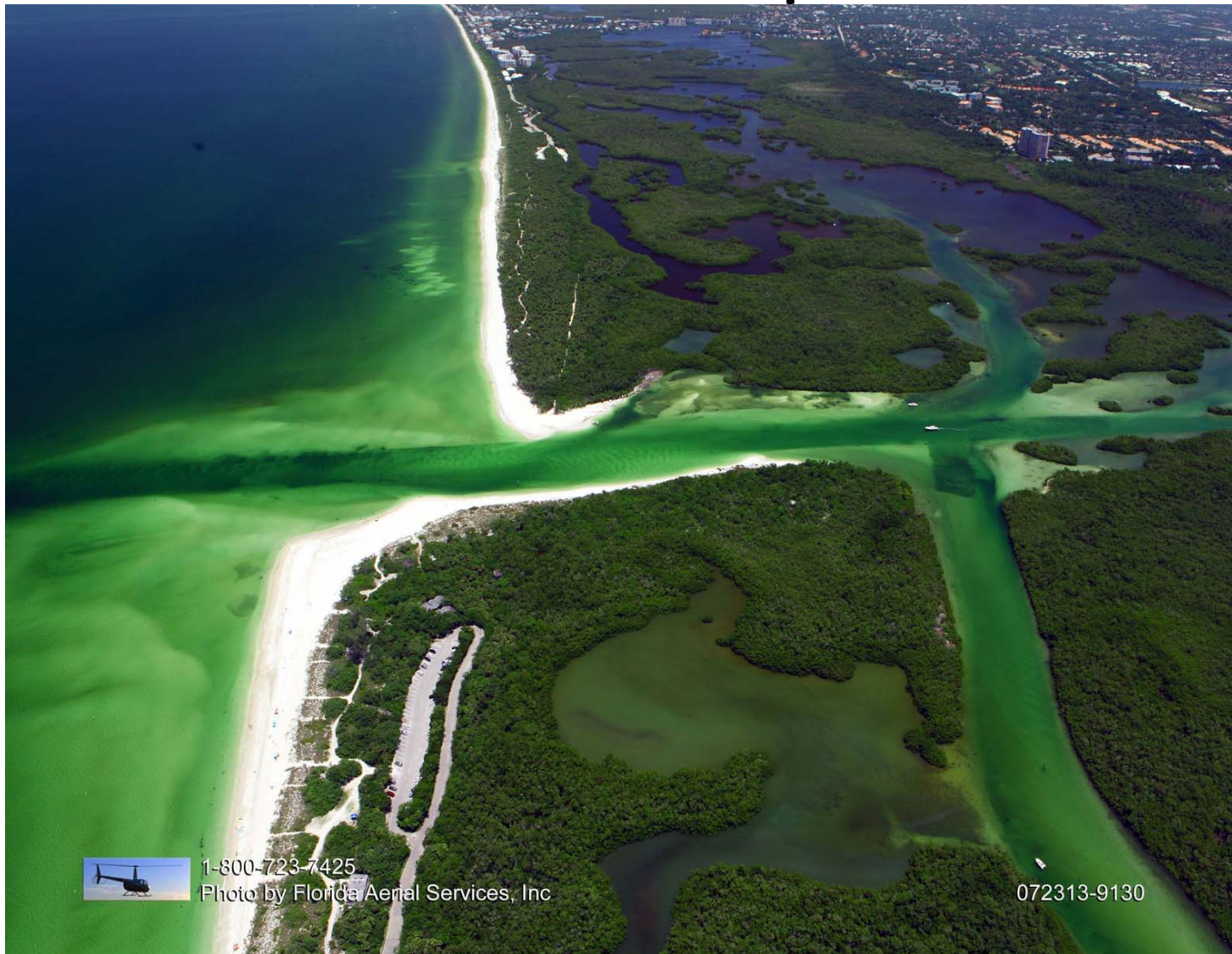


Turbidity Curtain



Dredge Conditions July 2013

After Clean Up Phase





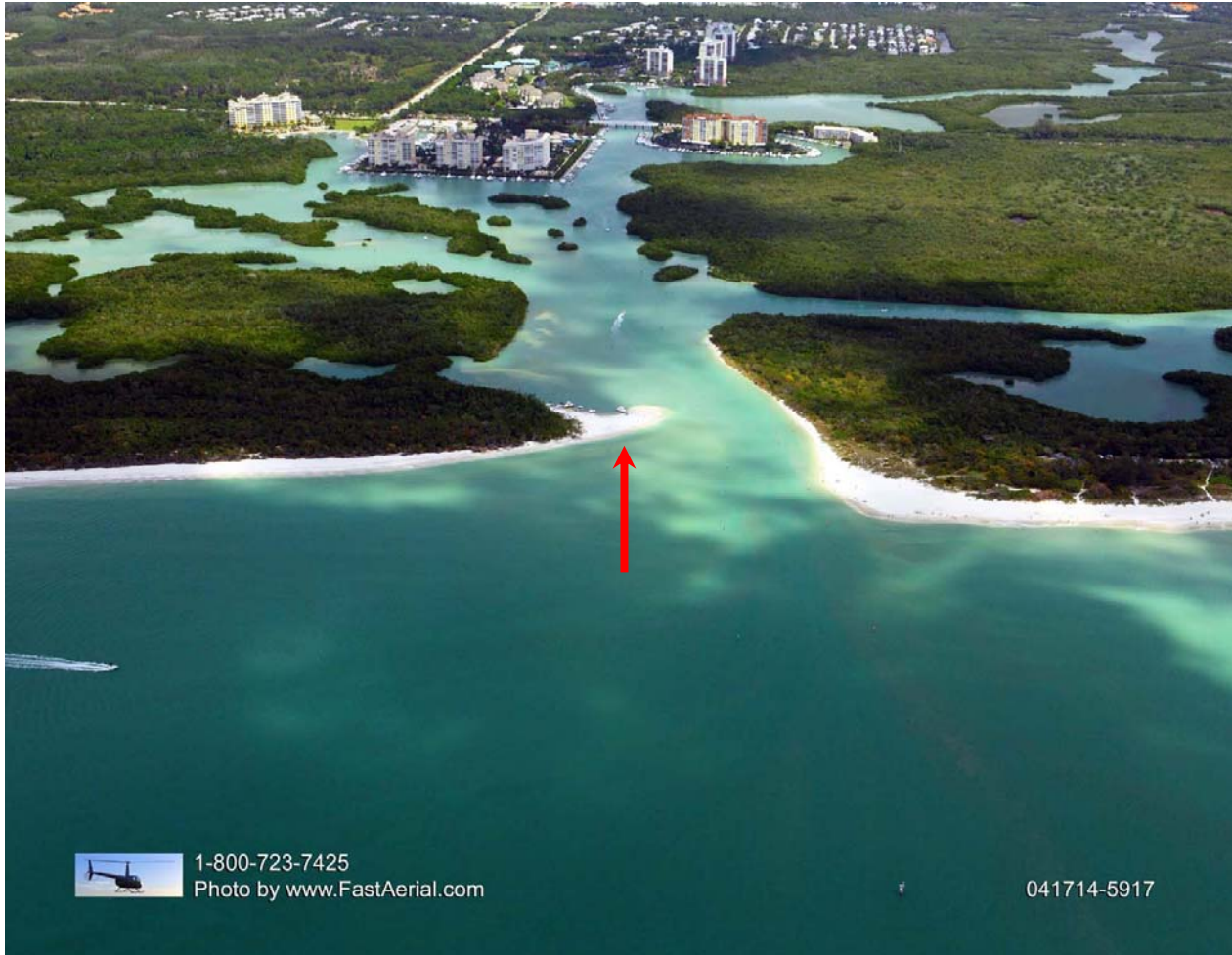
Barefoot Beach Before and After



Monitoring



April 2014 Condition

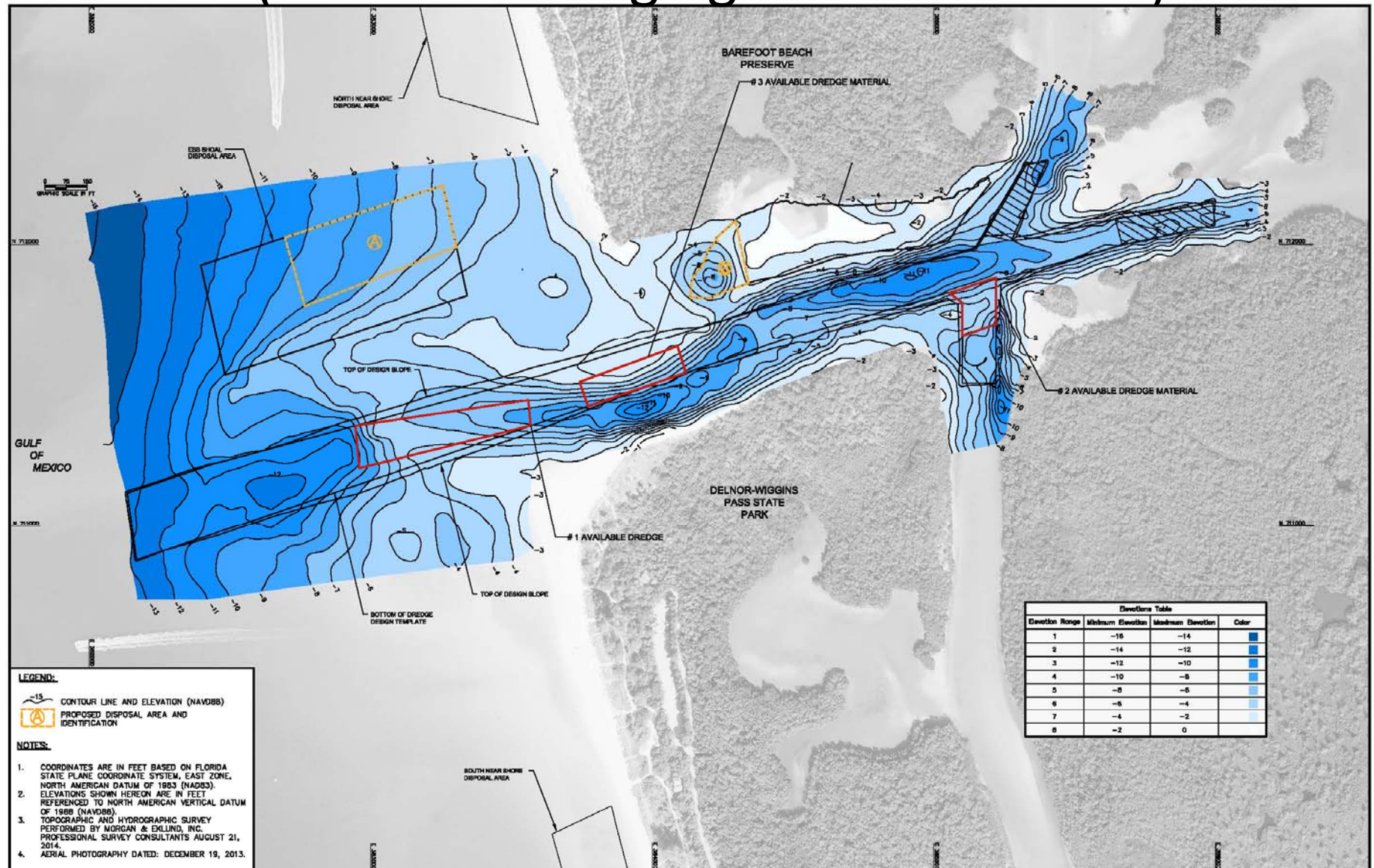


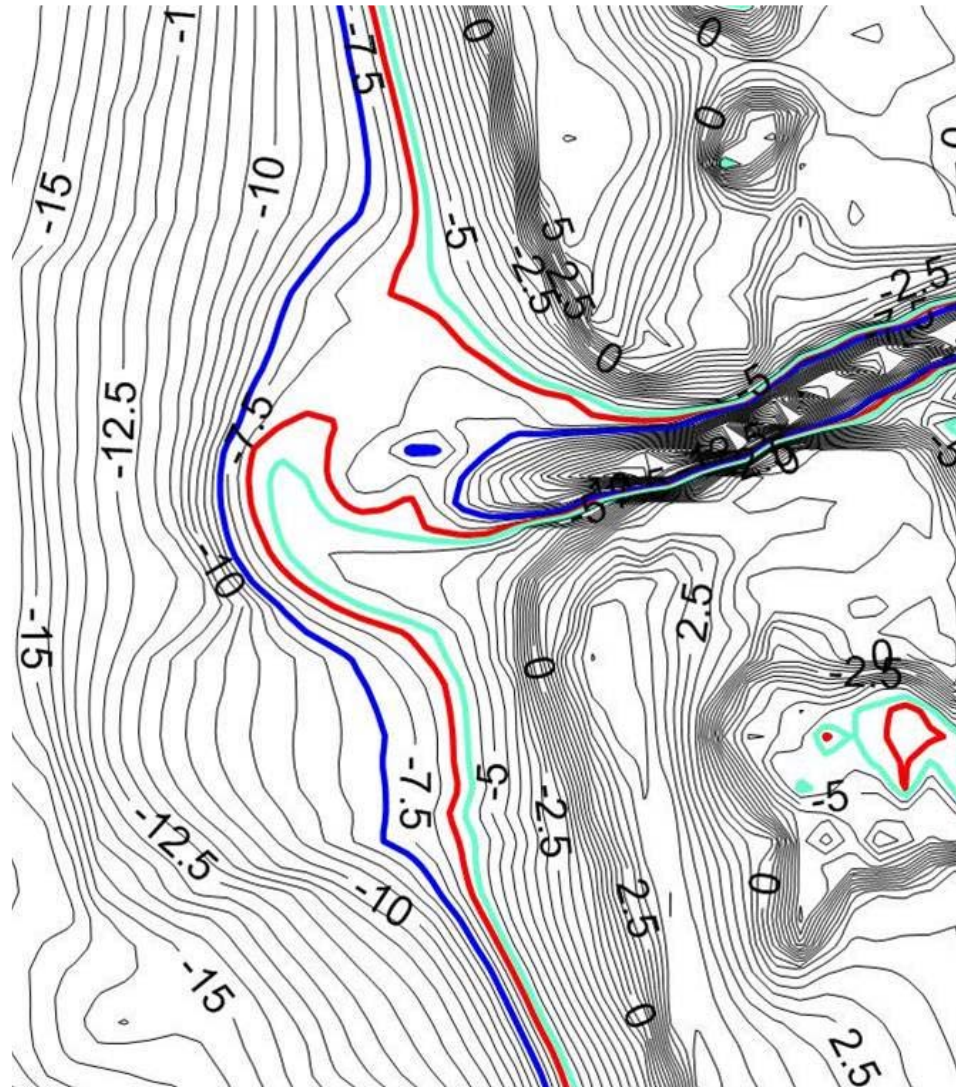
Note: Barefoot Beach Sand spit forming in channel
Turbid waters make navigation more difficult

- Long Term Plan & Permit Accommodates
- Opportunistic Use of Natural Alignment
 - Reduces Dredging Volumes
- Major and Interim (small) Dredging Events
 - 9,400 cy in 2015
- Full Implementation is incremental process
 - Barefoot Beach is Long Term challenge and needs a mature ebb shoal.

1-Year Monitoring Results

(intermin dredging locations in red)







2010 vs 2014 Conditions Now Straighter





Inlet Management

2013 FDEP Permit Condition:

Based on beach and inlet monitoring surveys, the dredged material will be Distributed to the disposal areas in order to balance the sediment budget between the inlet and the adjacent shorelines, offset erosion of the adjacent shorelines, and maintain the location and hydraulic stability of the navigation channel.



2013 FDEP Permit Condition:

Sand Distribution Management Practices

1990's	Favor the South – Delnor Wiggins Park
2000's	In practice – equal distribution north & south
2011	Permit Proposes 1/3rd South and 2/3rd North, based monitoring since 2001.
2014	Large imbalance in favor of south More sand placement needed in north

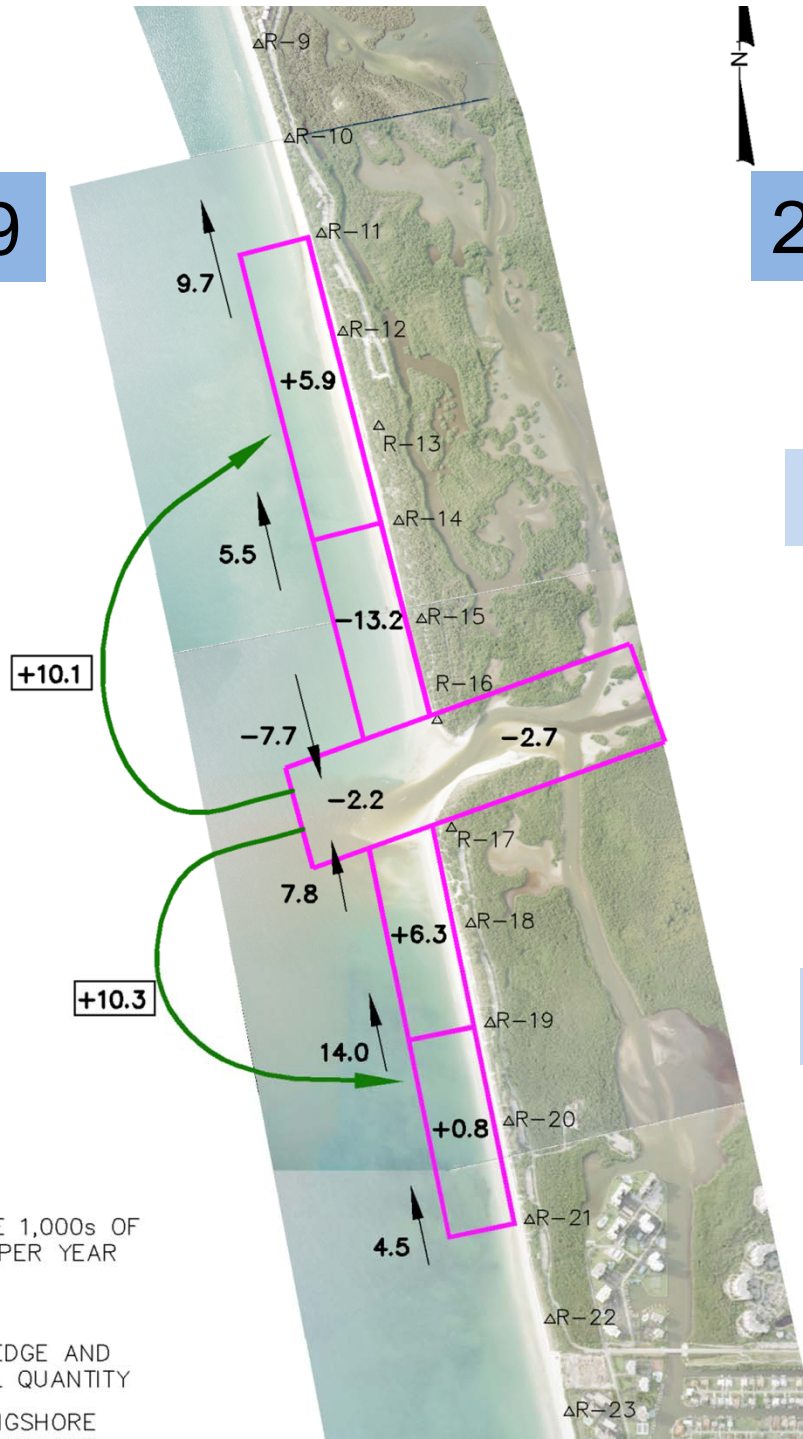


Volumetric Change (CY) North and South of Wiggins Pass

Profile	Effective	1992	2001	1992
	Distance (ft)	2001	2014	2014
R-12	485	2,480	20,822.0	23,302
R-13	971	966	21,914.0	22,880
R-14	997	4,415	-50,928.0	-46,513
R-15	1,032	-32,854	-77,061.0	-109,915
R-16	537	-81,447	-80,473.5	-161,921
Wiggins Pass				
R-17	523	17,832	10,211.5	28,043
R-18	1,006	-14,538	3,578.2	-10,960
R-19	1,020	18,208	-9,557.7	8,650
R-20	1,010	12,289	5,855.6	18,145
R-21	463	634	2,684.3	3,318
Barefoot Beach	4,022	-106,397	-176,138	-282,535
R12 to R16				
Delnor Wiggins	4,022	34,481	12,772	41,388
R17 to R21				

1992 to 2009

GULF
OF
MEXICO



NOTE:

ALL UNITS ARE 1,000s OF
CUBIC YARDS PER YEAR

LEGEND:



2001 to 2014

-13,500 cy/yr

+1,000 cy/yr



Questions?

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Straighter Channel



