

FL SHORE & BEACH TECH CONF

FEBRUARY 5, 2020



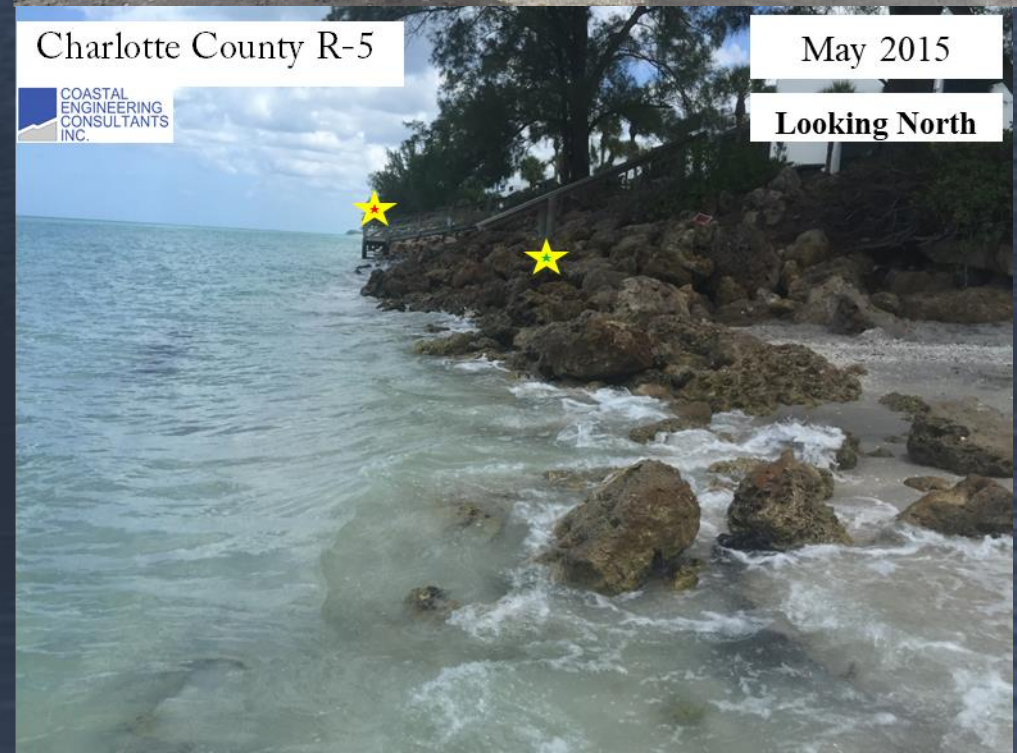
MANASOTA KEY

10-YR BEACH MANAGEMENT PLAN



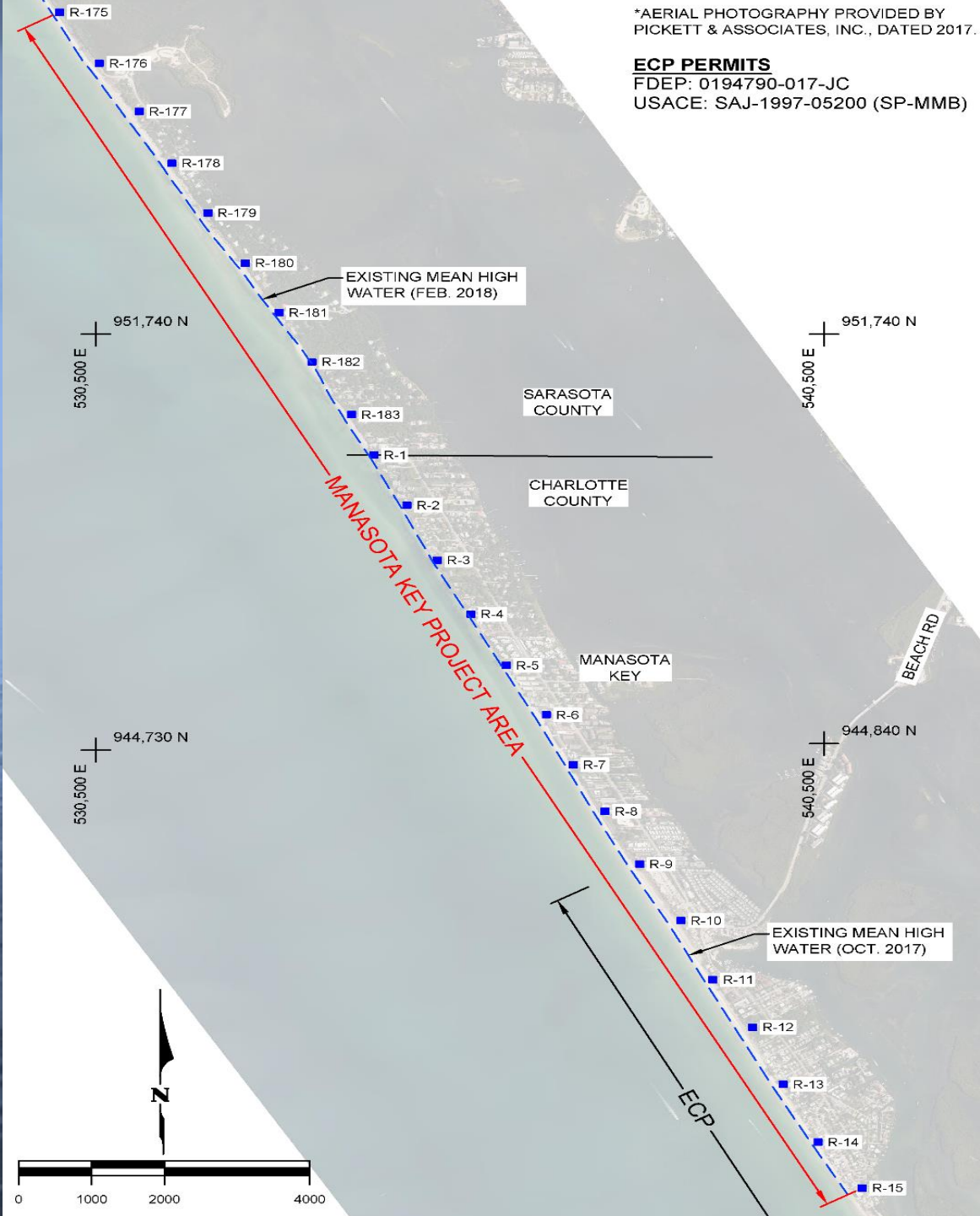
OUTLINE

- That Was Then ...
- This Is Now ...
- Charlotte County Initiative
- Sarasota County Initiative
- Let's Get Regional
- THE True Regional Perspective
- But Wait – There's More
- Show Me the Money!
- Summary and Acknowledgments



*AERIAL PHOTOGRAPHY PROVIDED BY PICKETT & ASSOCIATES, INC., DATED 2017.

ECP PERMITS
FDEP: 0194790-017-JC
USACE: SAJ-1997-05200 (SP-MMB)



PROJECT AREA

- Sarasota-Charlotte Joint Project for Manasota Key
- Overlaps With Charlotte's Existing Erosion Control Project from Englewood Beach Park to State Park



THAT WAS THEN...

Historic Shoreline Changes in Southwest Florida

Emmett R. Foster, P.E. and Rebecca J. Savage

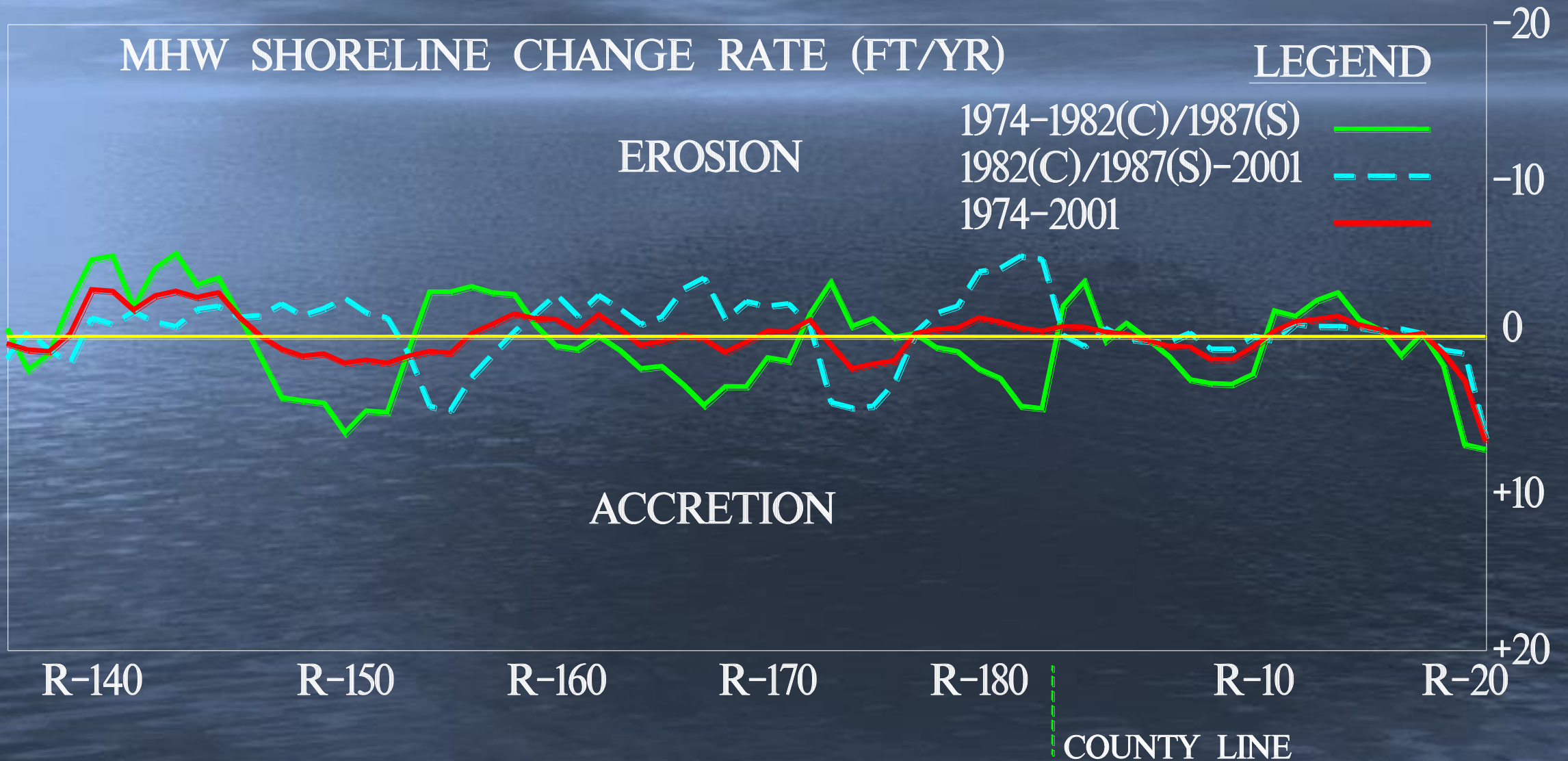
Notes Added To The WEB Copy , 3/04/97, by E.F. :

1) This paper was published in Coastal Zone '89, the Proceedings of the Sixth Symposium on Coastal and Ocean Management, 1989, Vol. 5, pp. 4420-4433, published by the American Society of Civil Engineers, N.Y., USA. Permission to place this copy on the FDEP/BBCS WEB site was granted by ASCE in January 1997.

It has also been observed that sand often moves in large masses or "slugs", up to 10000 feet (3000 meters) in length, within the larger pocket beaches between headlands, and between headlands and inlets. The movement is slow but apparently in response to directional wave energy. The aerial photographs suggest similarity to a highly viscous fluid traveling back and forth in a bowl. The sand masses also occasionally move across the headlands. This phenomena in general can result in significant short-term variability in beach width, on the order of 150 feet (50 meters). The large pockets which exhibit this phenomena are the following: between the Casey Key headland and Venice inlet; between the Venice headland and the Manasota Key headland; between the latter and the Charlotte County Line minor headland; and from the latter to Stump Pass.



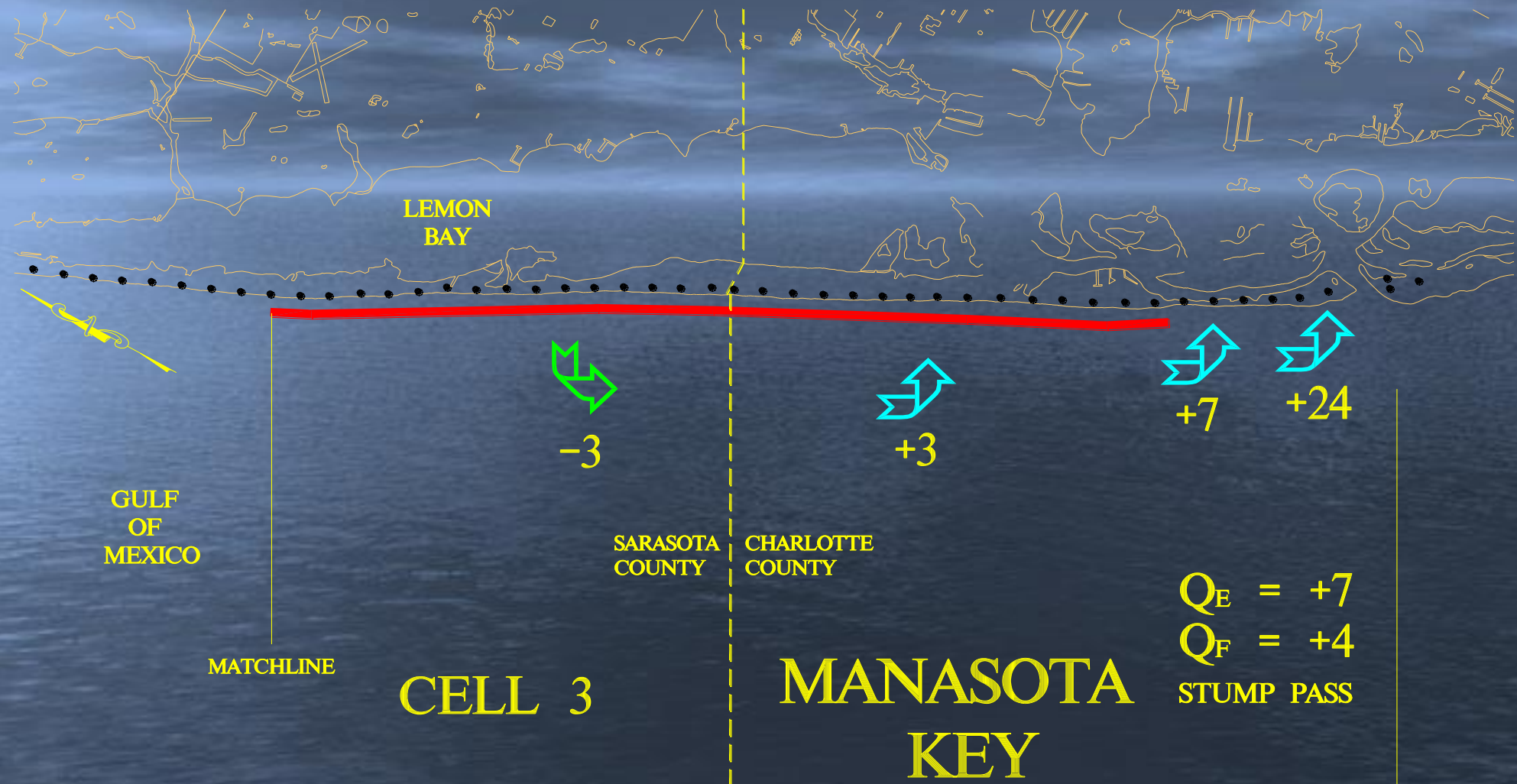
MANASOTA KEY HISTORIC SHORELINE CHANGES



JOINT BEACH EROSION STUDY

- 2001-2003: Sarasota-Charlotte Regional Study
 - Co-funded by Counties and FDEP
 - Erosion Analysis, Physical & Natural Resource Assessment,
 - Potential Sand Sources, Costs, Funding Approaches
- Beach Restoration Plan – Regional Approach
 - Blind Pass Park (S) to Chadwick Park (C)
 - Historical Erosion Rate ~ 0.9 ft/yr 1.1 cy/ft/yr
 - Small area of exposed hardbottom @ County Line
 - Beach Nourishment to Address Chronic Erosion (R156-R13)
 - 42,600 ft 150-ft wide berm 52 cy/ft
 - 2.2 Mil cy \$22 Million (2003 Dollars)
 - 50 / 50 Split amongst stakeholders for support

MANASOTA KEY SEDIMENT BUDGET (1974-2001)



$Q_N = 42$

➡

$Q_N = 45$

➡

$Q_N = 35$

➡

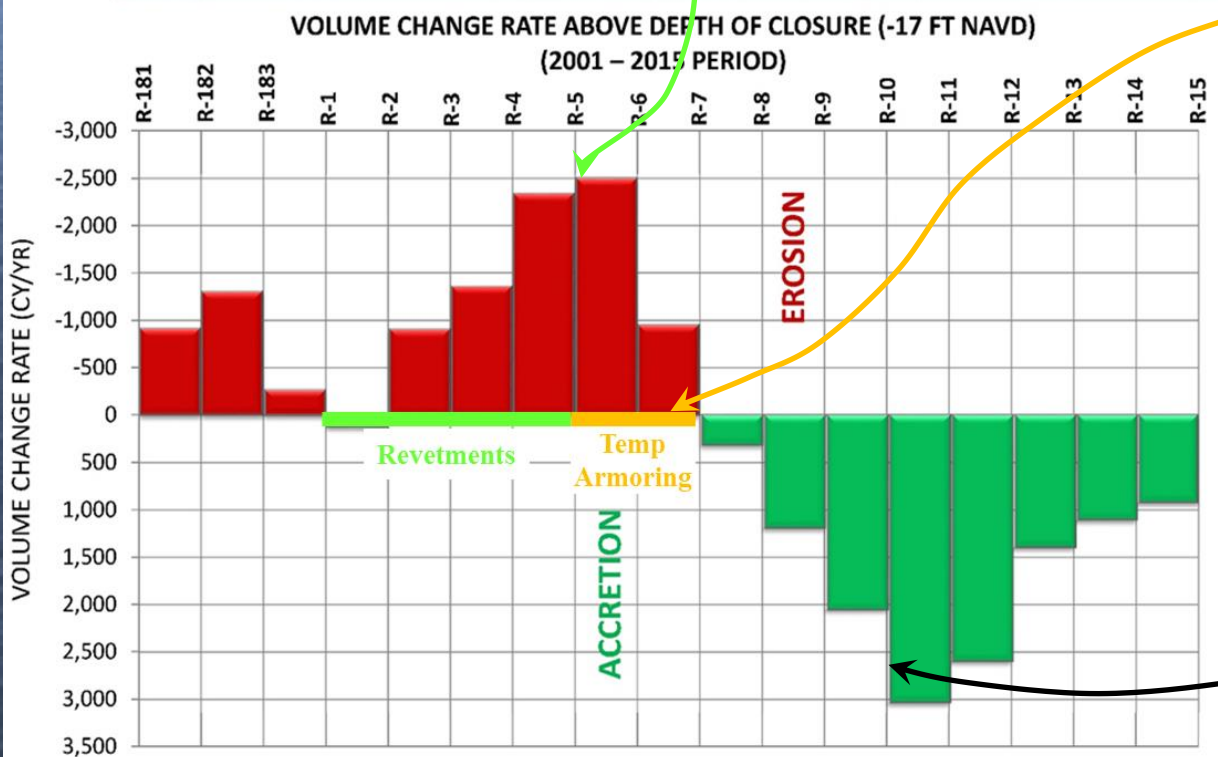
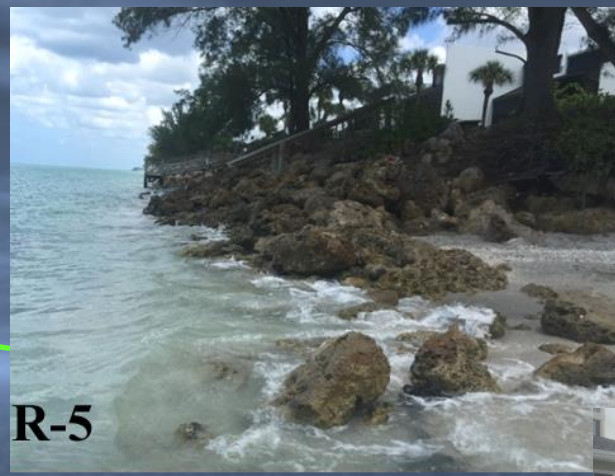
$Q_N = 0$

➡

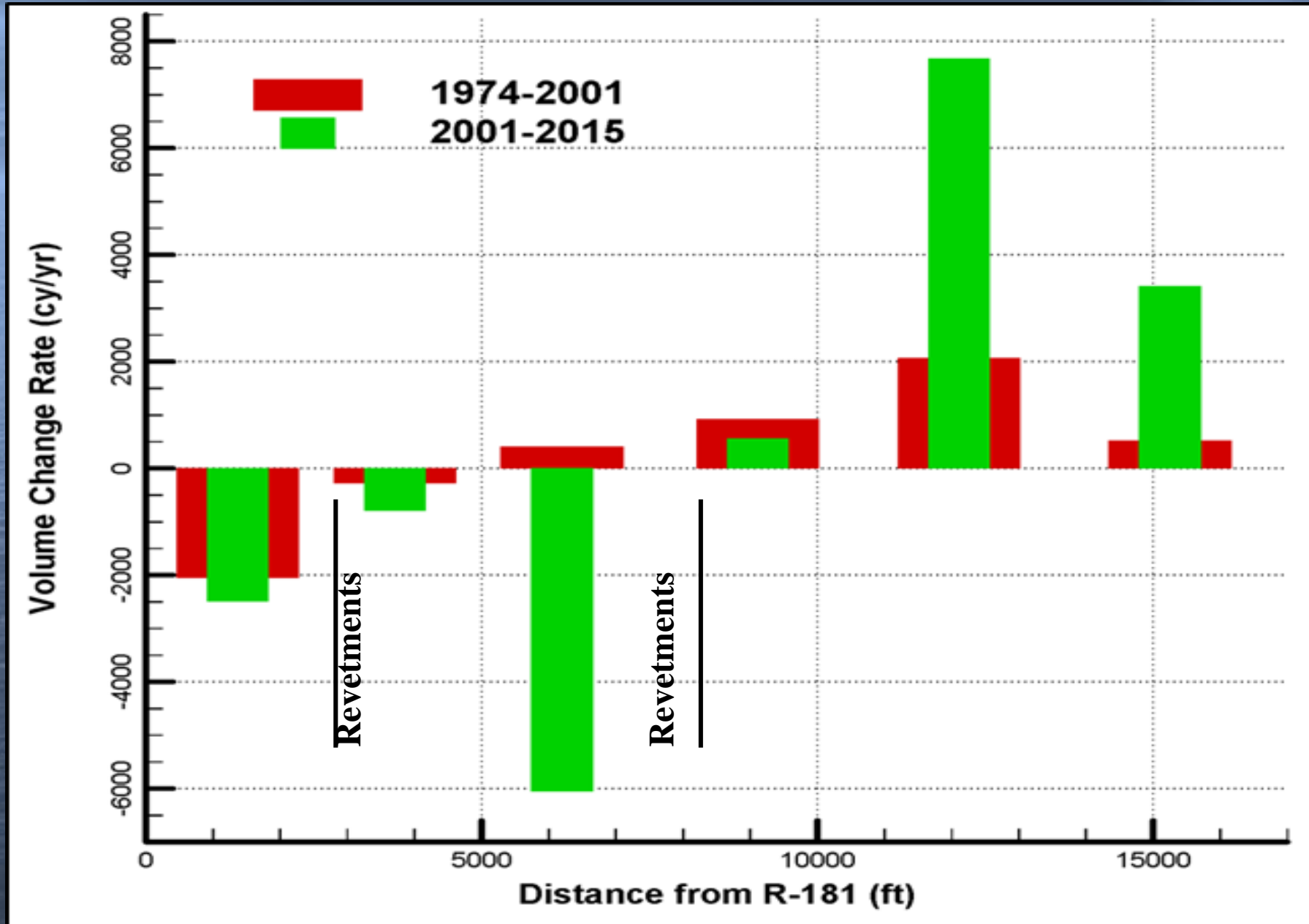
R-Mon	Change Rate (FT/YR)
	2001-2015
R-181	-0.4
R-182	-2.1
R-183	-1.5
R-1	0.2
R-2	-1.9
R-3	-0.8
R-4	-4.8
R-5	-5.6
R-6	-7.0
R-7	-4.5
R-8	-3.3
R-9	-2.3
R-10	-1.7
R-11	-2.0
R-12	2.7
R-13	5.2
R-14	7.1
R-15	5.3

THIS IS NOW ...

Erosion Rate
~ 4 ft/yr



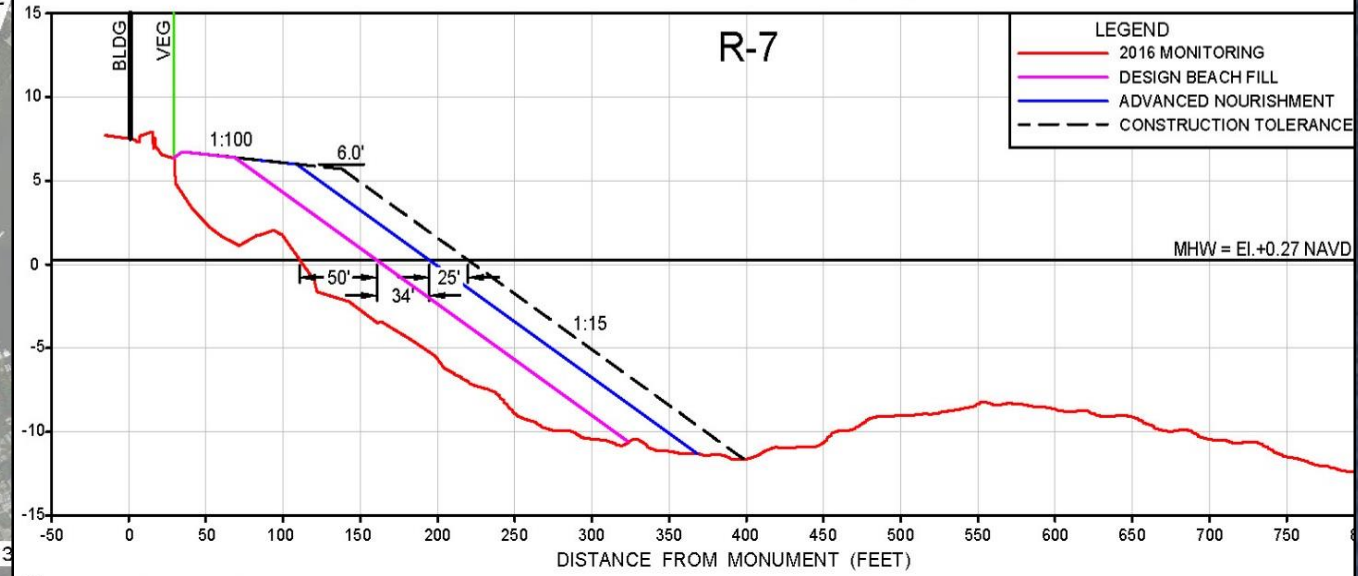
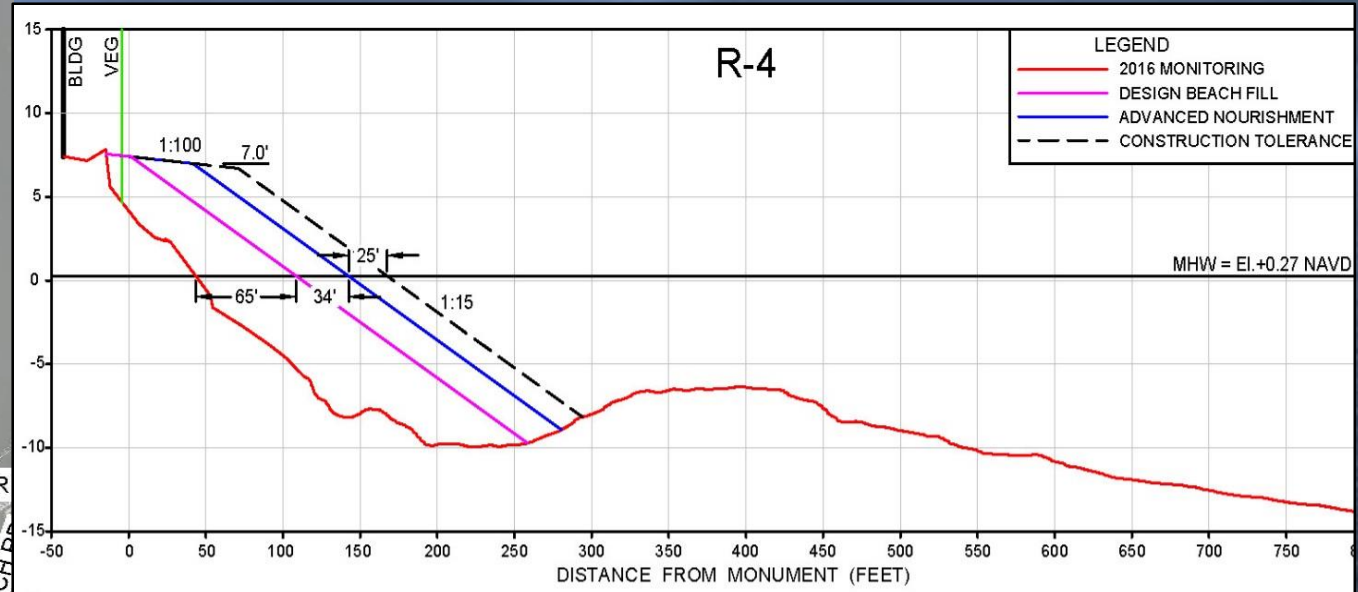
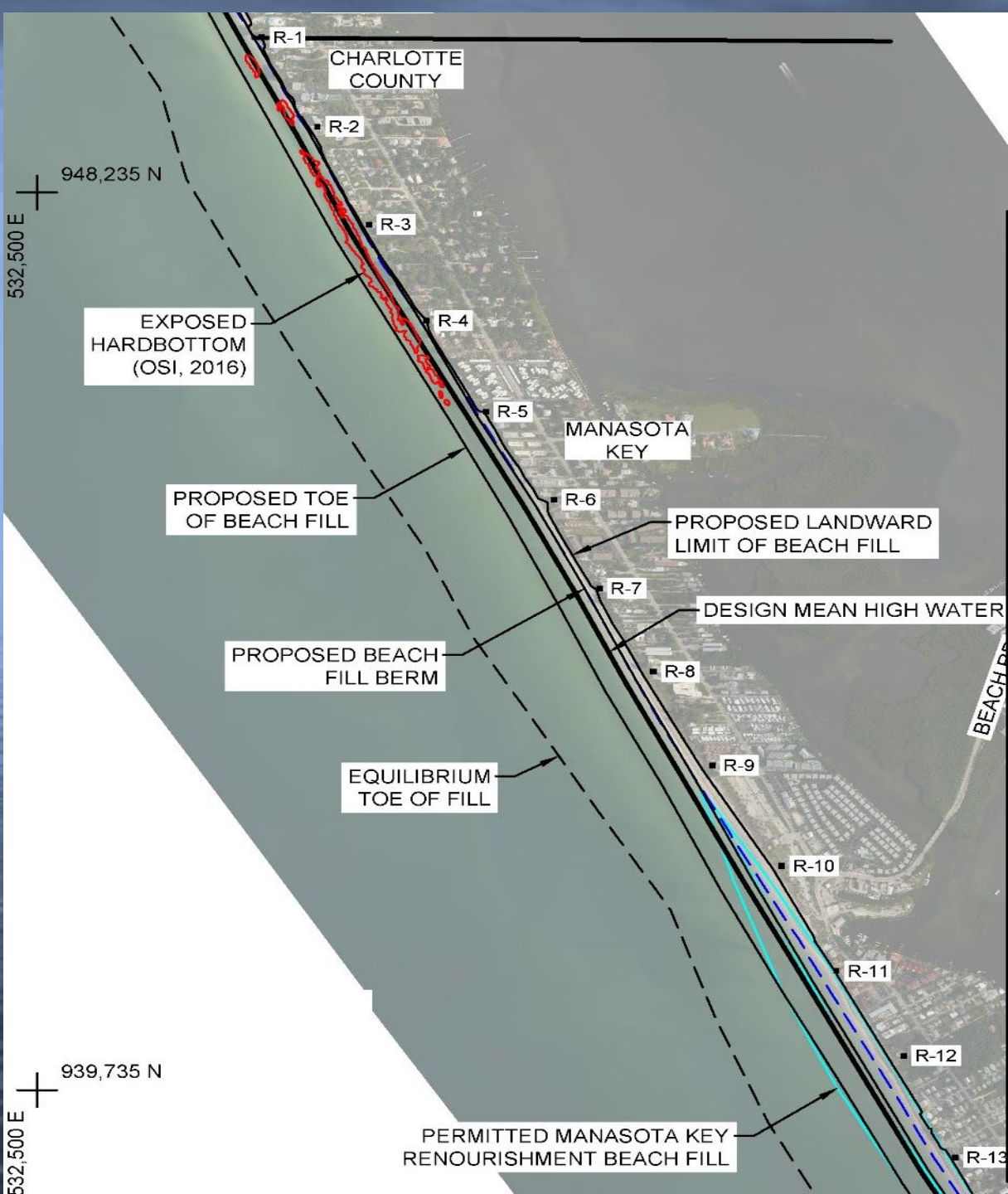
SEDIMENT BUDGET UPDATE



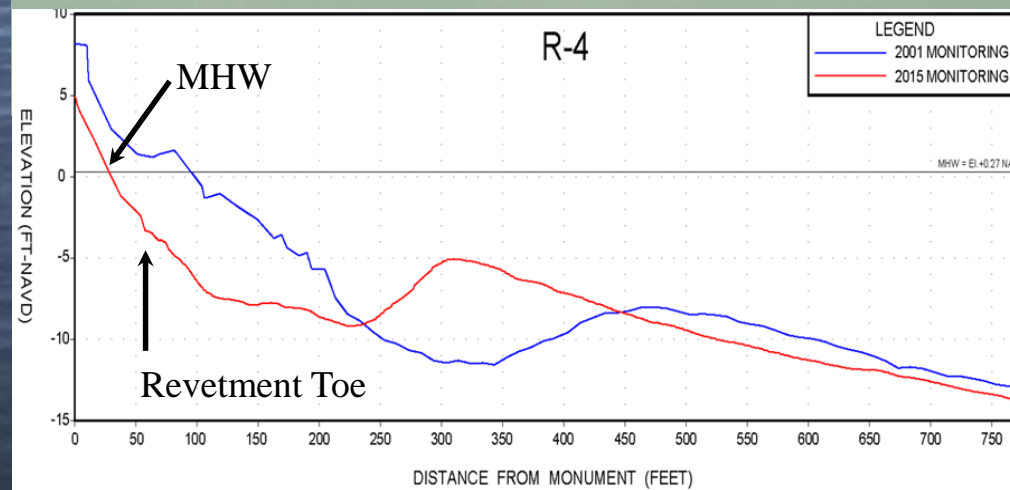
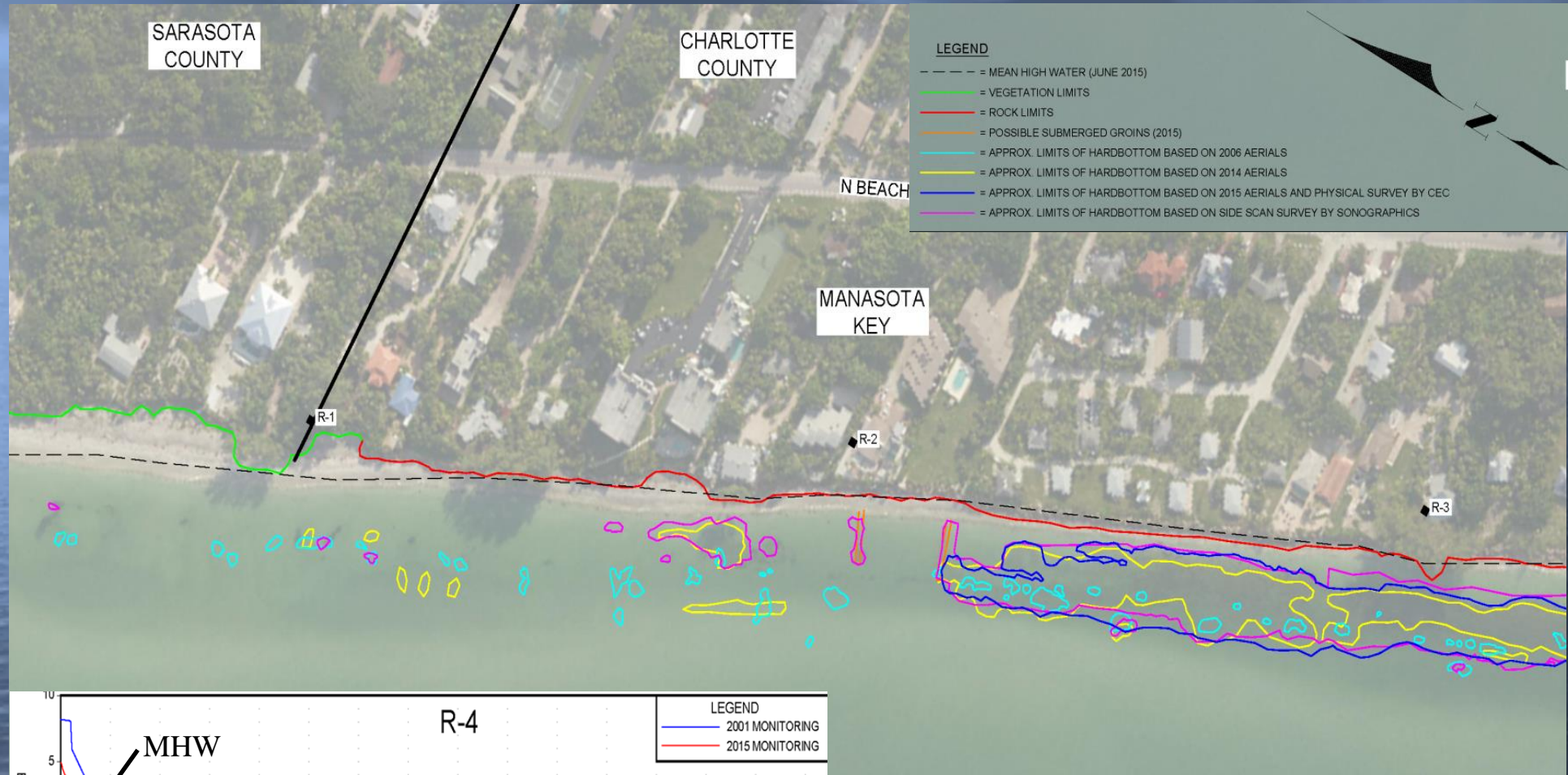
CHARLOTTE COUNTY INITIATIVE

- **Beach Restoration & Renourishment Design**
 - ~ 2.7 Miles to be Restored (taper into Sarasota)
 - Design Storm ~ 25-Year Return Interval
 - 50 ft Wide Design Template
 - Beach Width Varies (Armoring, Existing Conditions)
 - Design Volume ~ 570,000 CY
- **Nearshore Hardbottom Impacts**
 - Over 4 AC will be covered requiring mitigation
 - Construct artificial reef using native limestone
- **Regional Sand Source Search**
 - Existing Project has 5 Permitted Borrow Areas > 1 MCY
 - Targeted 3 New Offshore Sand Sources > 2 MCY

DESIGN PLAN & TYPICAL SECTIONS



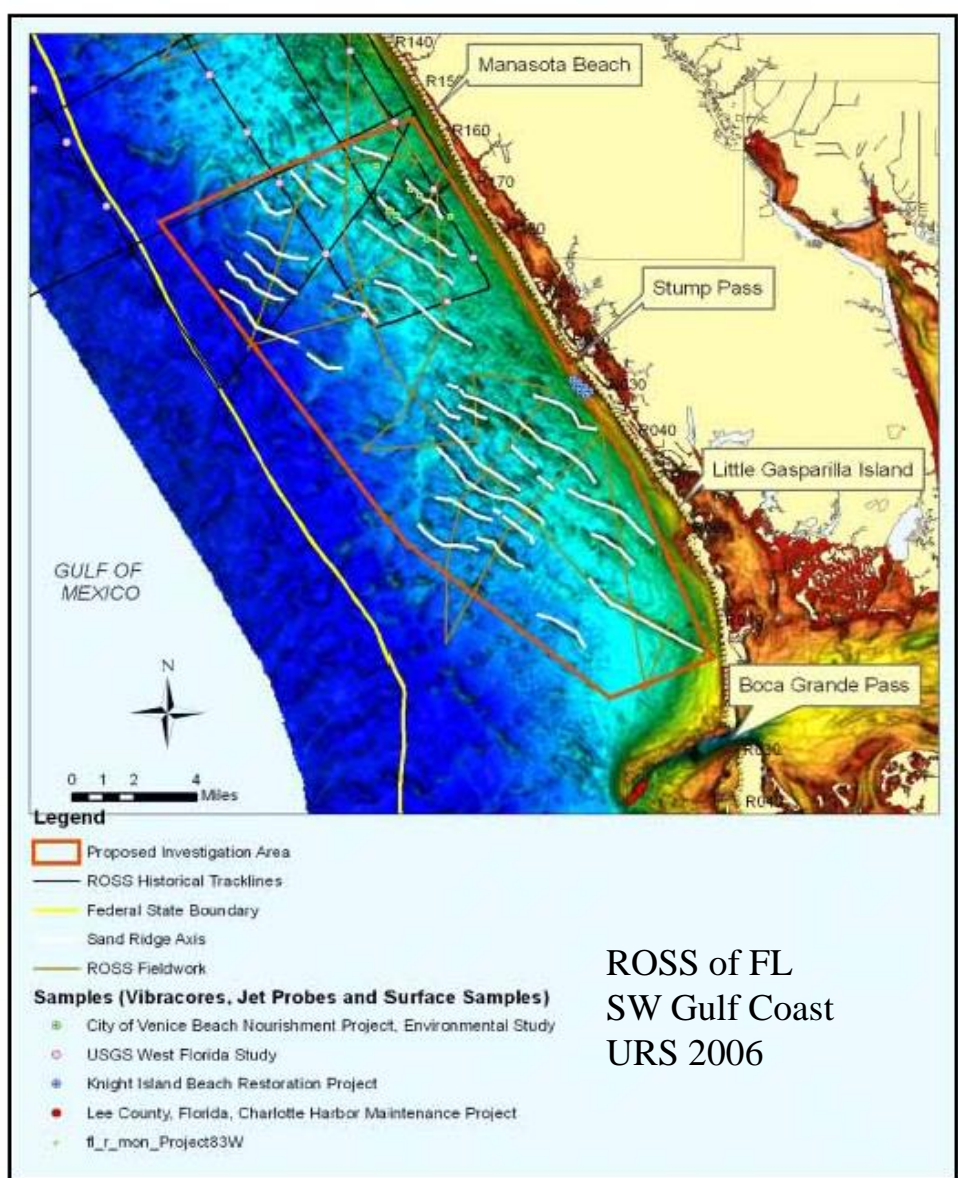
NEARSHORE HARDBOTTOM RESOURCES



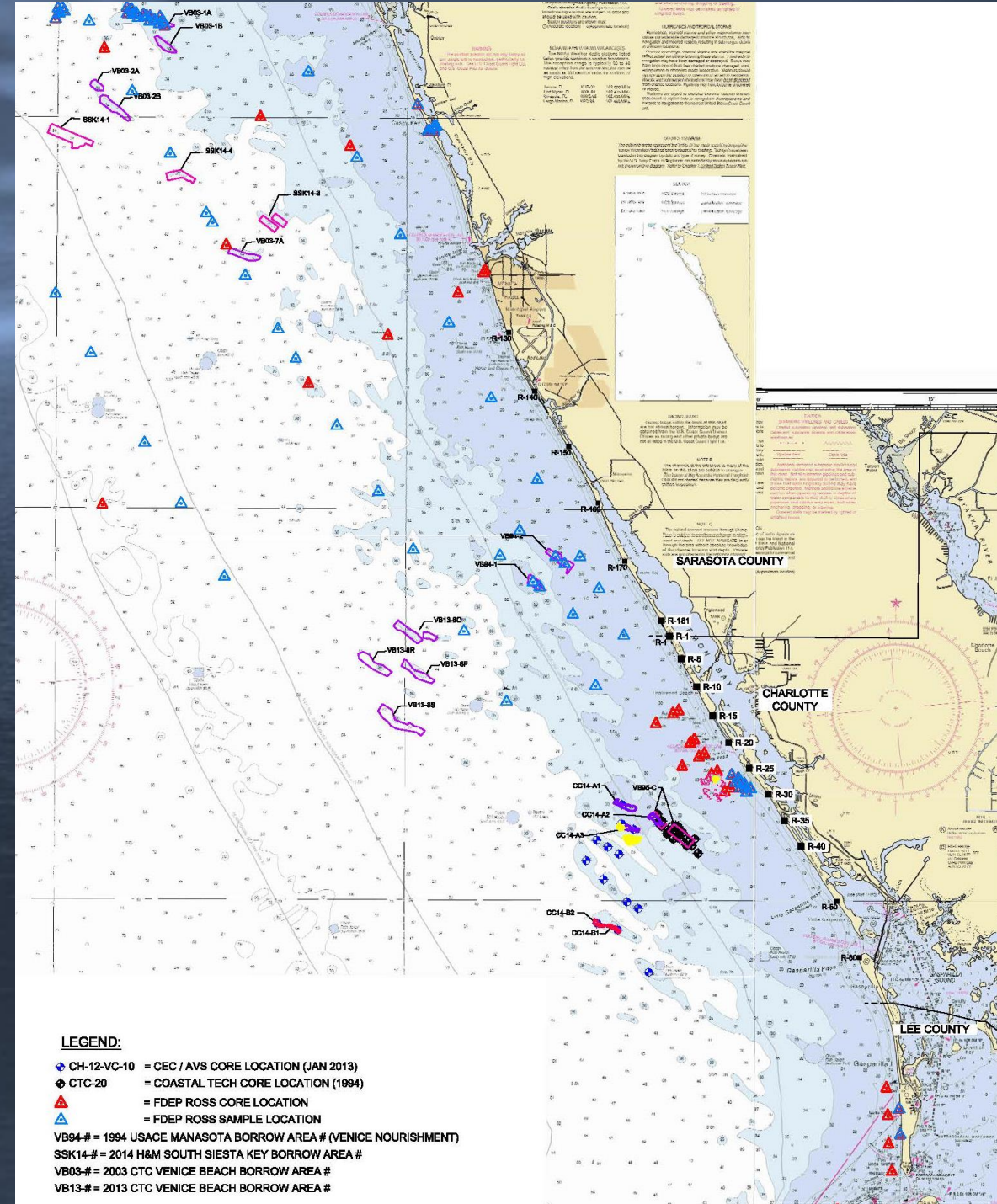
Remote Sensing/Diver Transects

- Low to medium relief (< 12 ")
- Turf algae community (flat surfaces) with areas of sponge community (edges and crevasses)

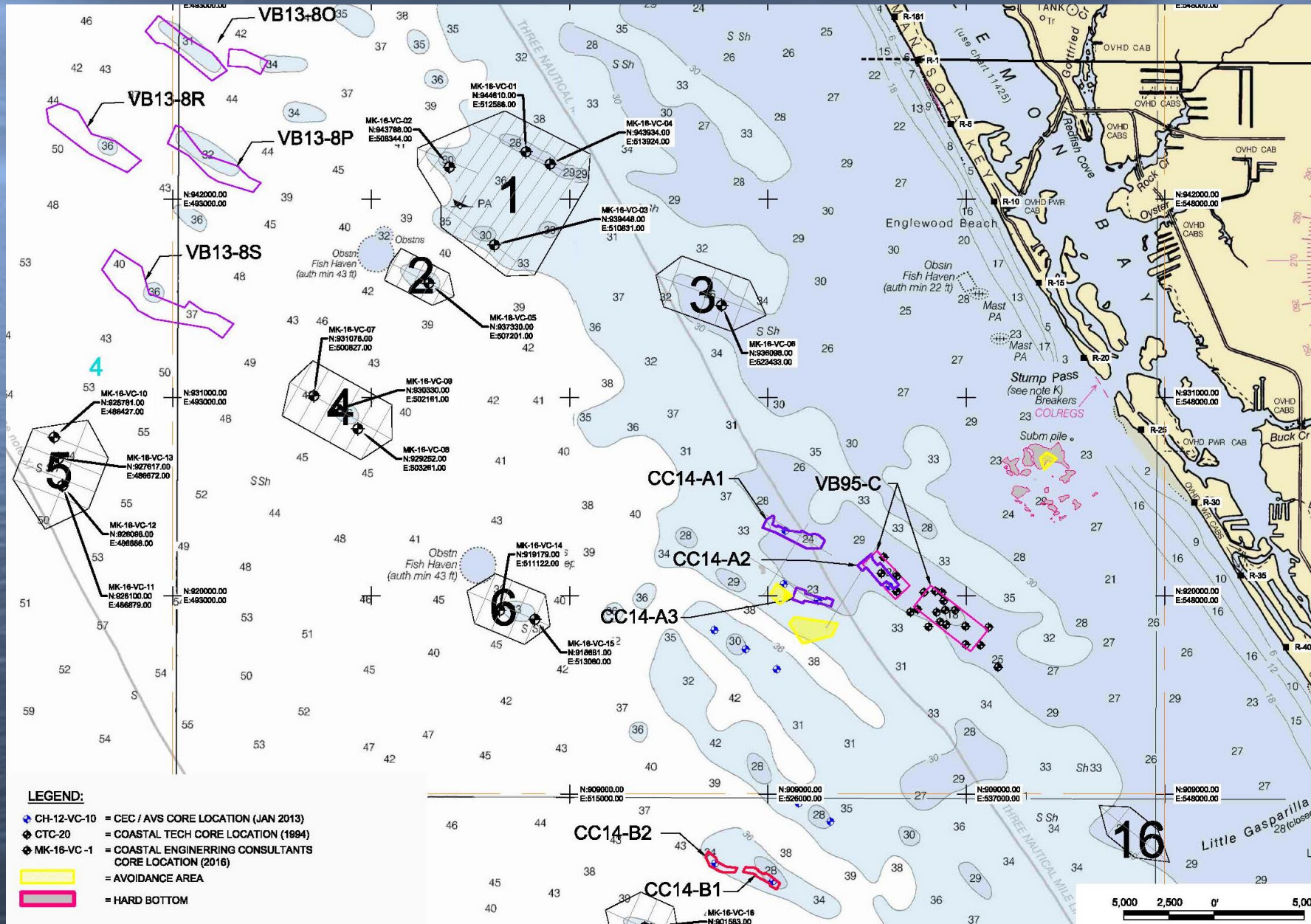
POTENTIAL SAND SOURCES



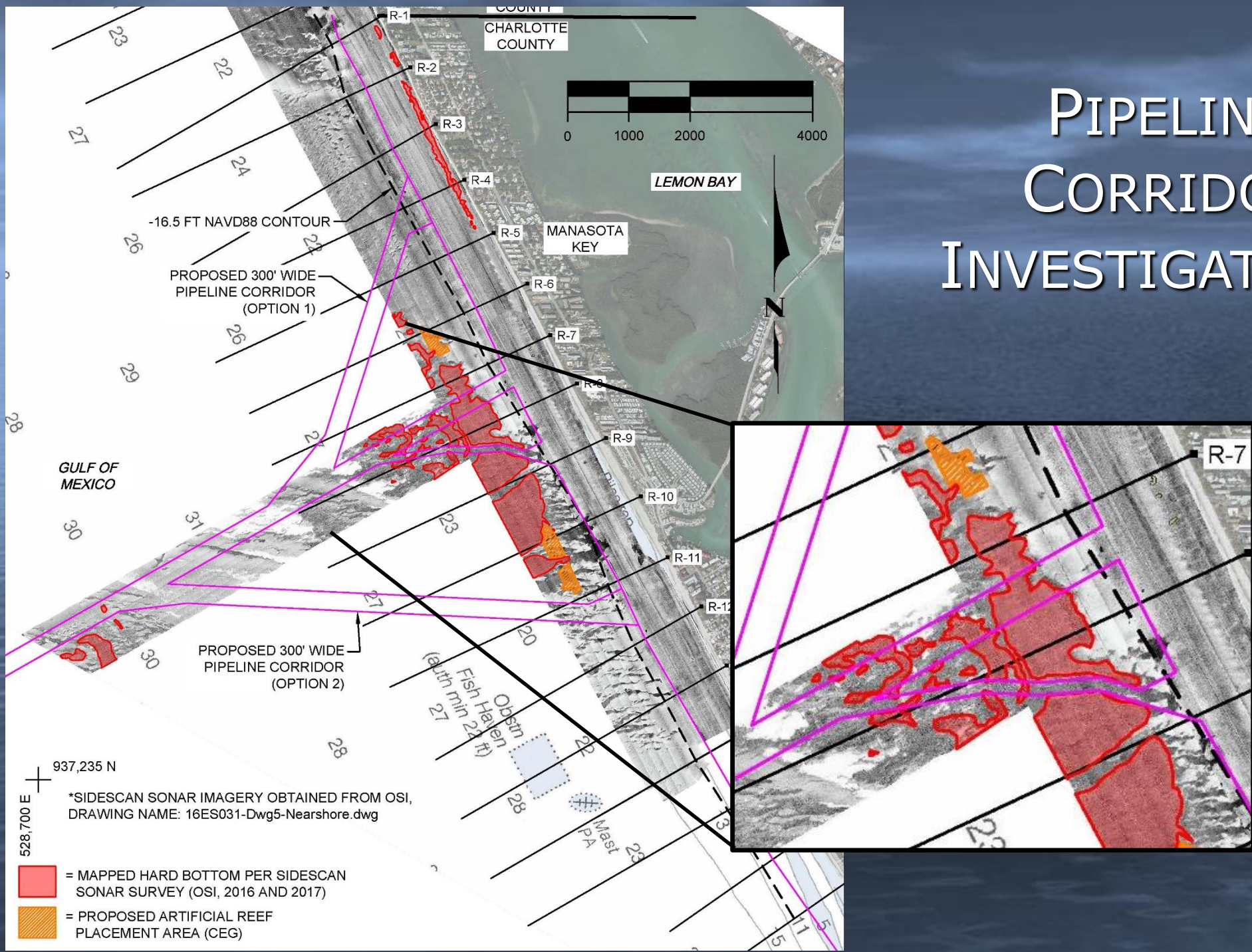
ROSS of FL
SW Gulf Coast
URS 2006



OFFSHORE BORROW AREA SEARCH

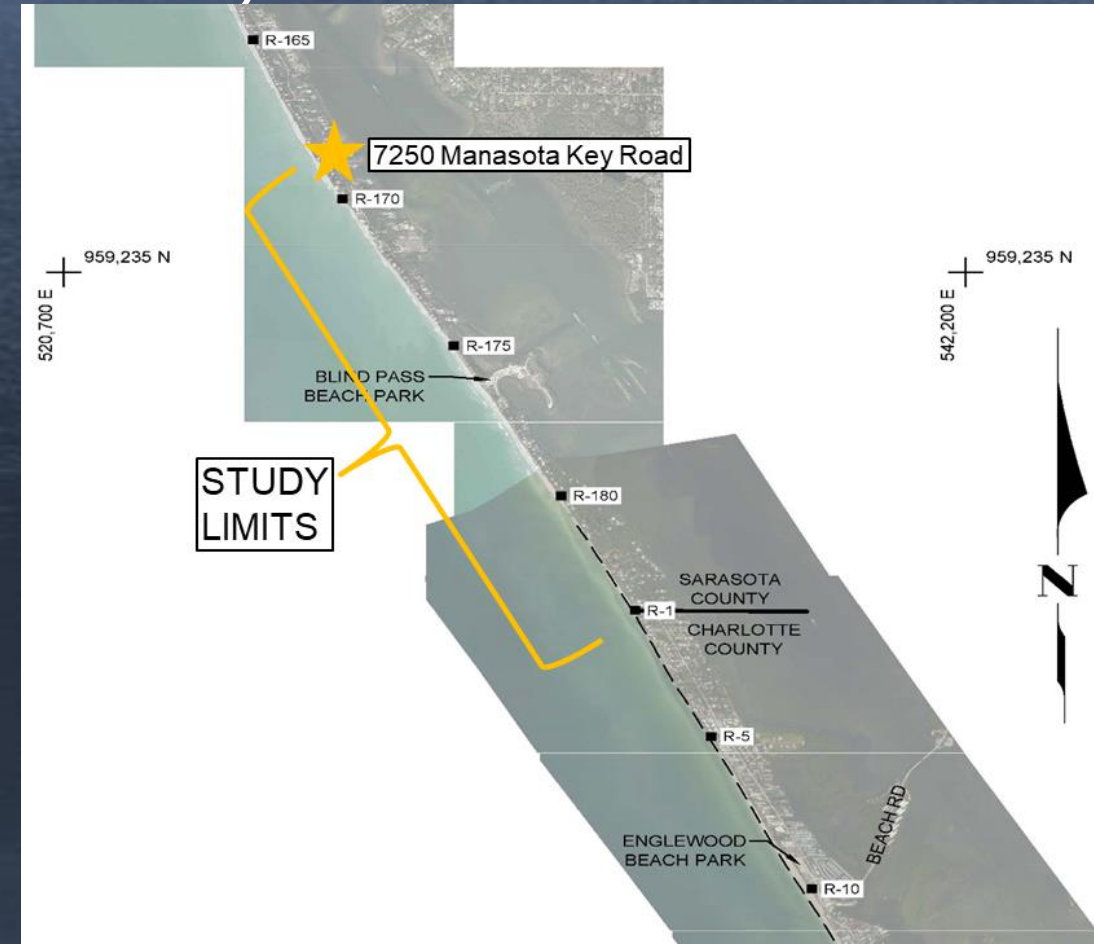


PIPELINE CORRIDOR INVESTIGATIONS

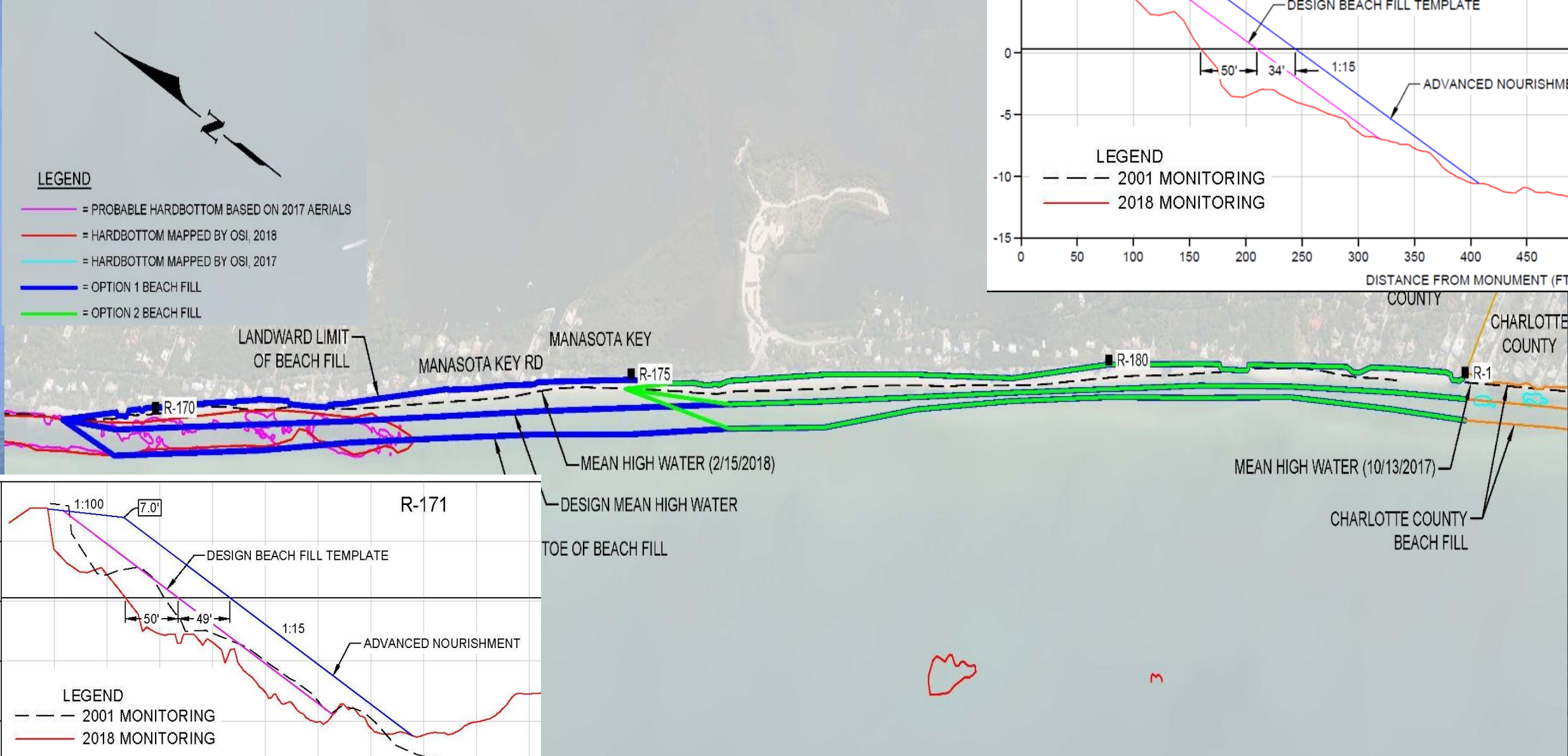


SARASOTA COUNTY INITIATIVE

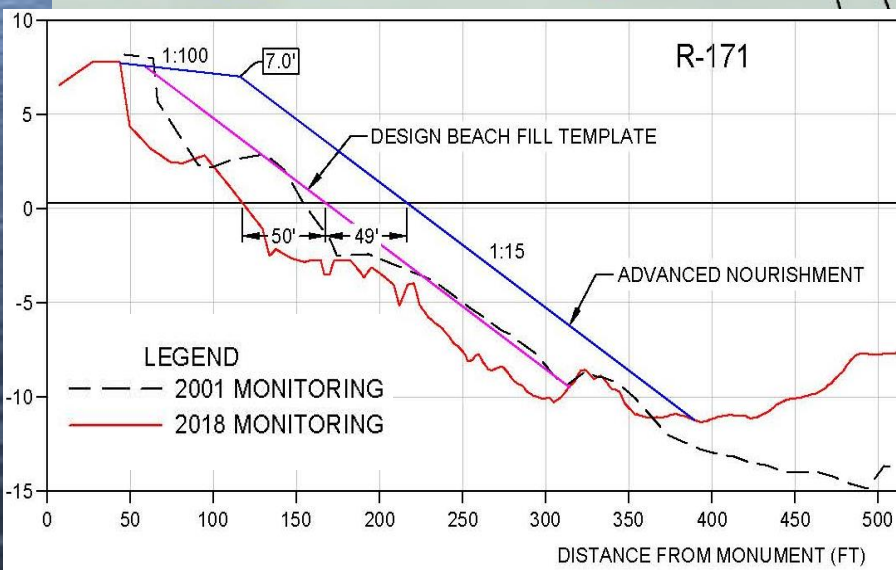
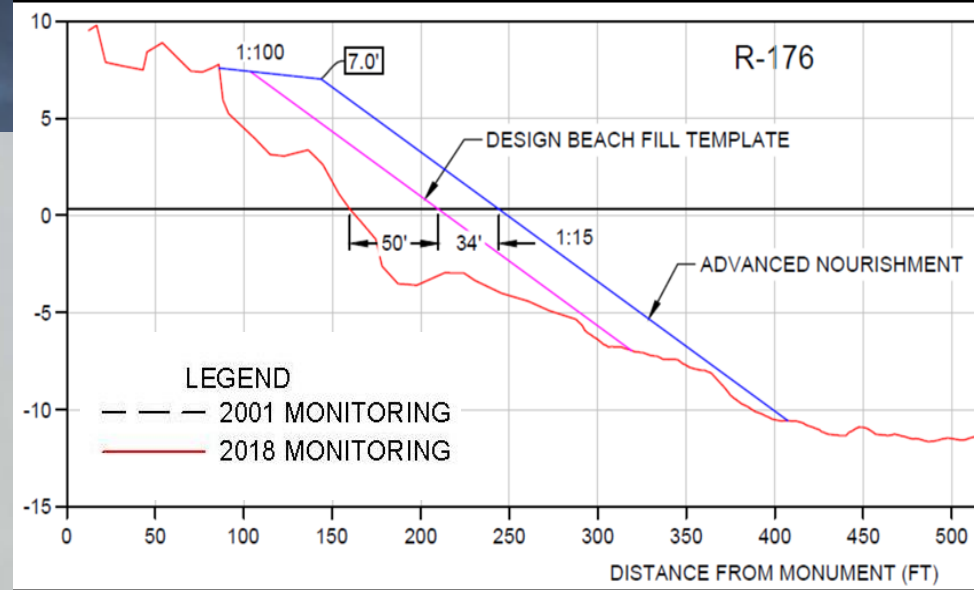
- **Beach Restoration & Renourishment Design**
 - ~ 2.4 Miles to be Restored (R-169 to County line)
 - Design Storm ~ 25-Year Return Interval (match Charlotte)
 - 50 ft Wide Design Template (match Charlotte)
 - Design Volume ~ 660,000 CY
- **Nearshore Hardbottom Impacts**
 - 12 to 20 Acres of Potential Impacts
 - Permittable???



DESIGN PLAN & TYPICAL SECTIONS



- LEGEND**
- = PROBABLE HARDBOTTOM BASED ON 2017 AERIALS
 - = HARDBOTTOM MAPPED BY OSI, 2018
 - = HARDBOTTOM MAPPED BY OSI, 2017
 - = OPTION 1 BEACH FILL
 - = OPTION 2 BEACH FILL



3

LET'S GET REGIONAL

- Project Performance
 - Address Both Critically Eroding Beach Segments
 - “Bigger” is “Better”
- Combining / Sharing Resources
 - Sand Sources
 - Subject Matter Experts & Staff Resources
- Cost Effectiveness
 - Cost Savings
 - Design and Permitting ~ \$300K - \$500K
 - Mob/Demob ~ \$5-\$10 Million
 - Saves Time!!!



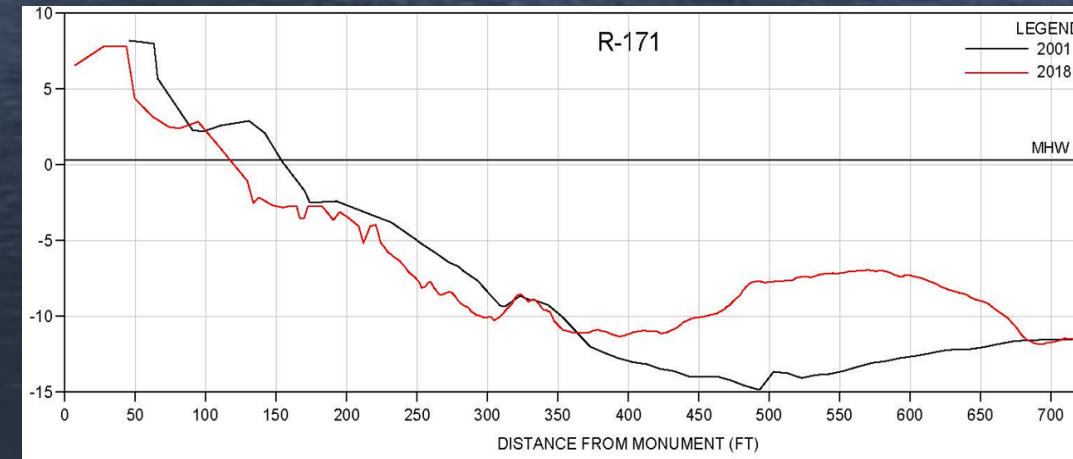
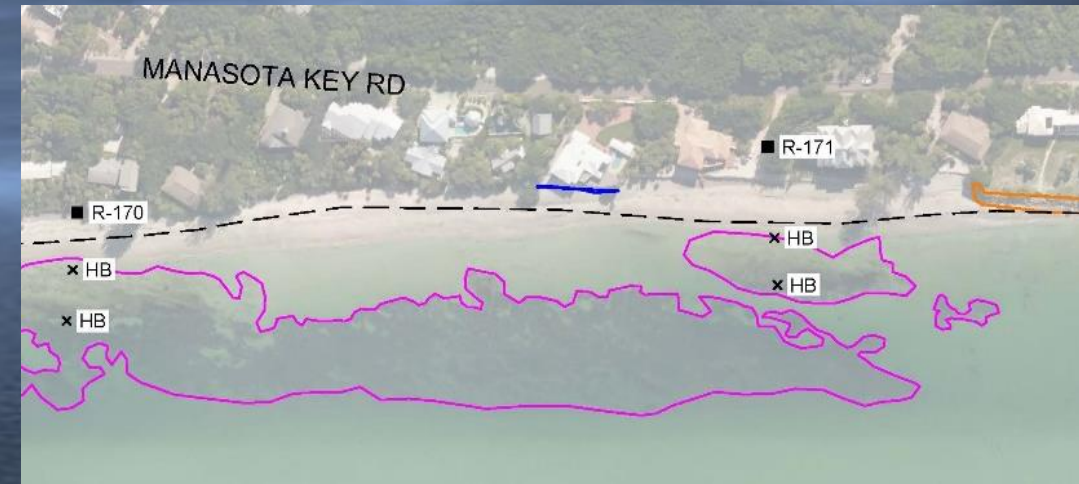
LET'S GET REGIONAL



- Funding Opportunities
 - Beach Management Funding Assistance Program
 - Additional Points in the Scoring Criteria
 - Project Length, Recreational Benefits, Regionalization
 - Increased Eligibility for Cost Share Percentage
- Long-Term Permitting
 - Agencies can grant 15-Yr (++) Permit Duration
 - Includes Initial Restoration and Two Renourishment Cycles
 - Have ability to restore and renourish the beach through 2033

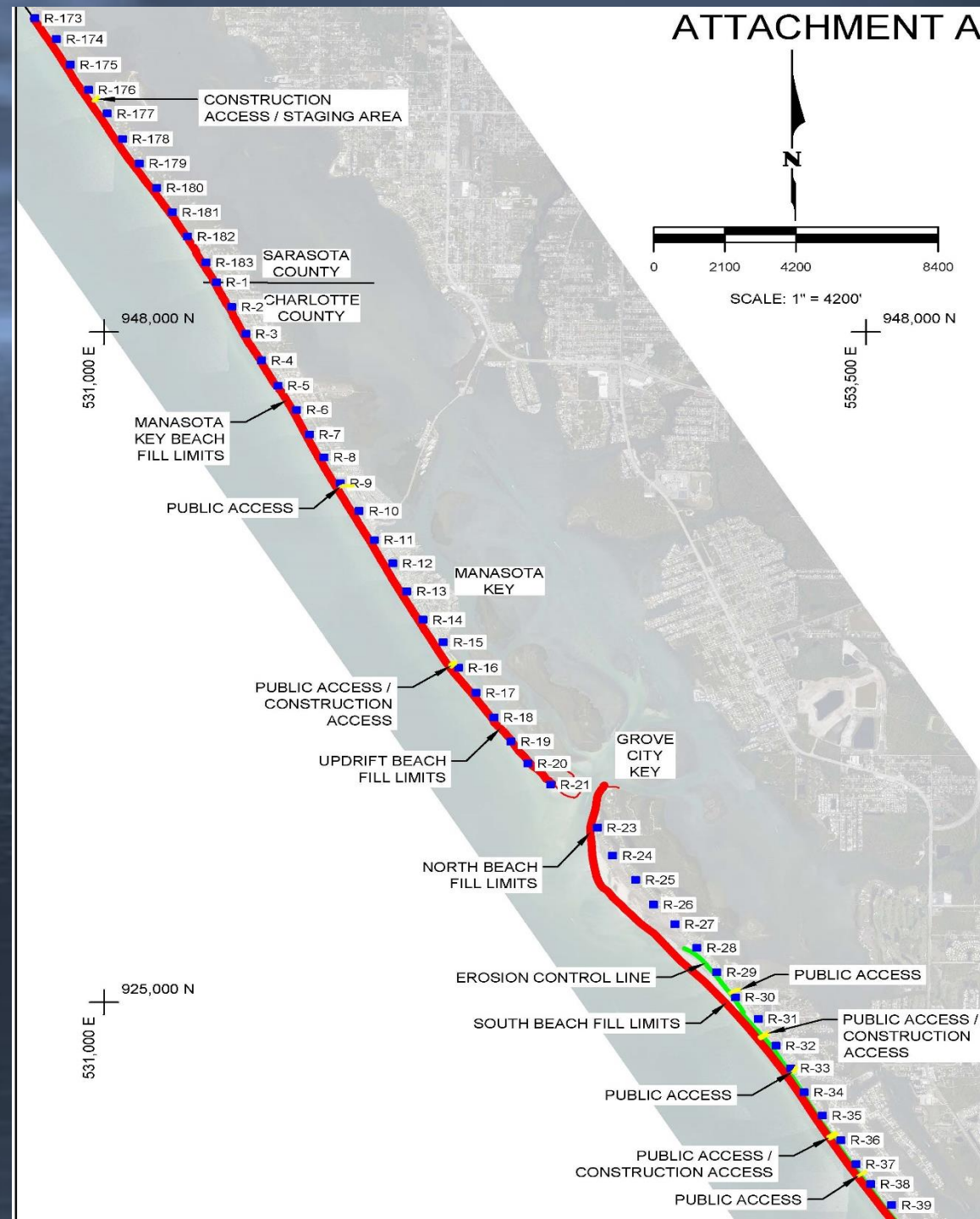
ADVANTAGES FOR PARTNERING

- Long-Term Storm Damage Reduction Benefits
 - Joint Project provides these benefits to residents and infrastructure along Manasota Key for years to come
- Avoid Hardbottom Exposure
 - “Do-Nothing Strategy” resulted in exposure of significant acres of nearshore hardbottom
 - Cost to Mitigate = \$7 Million
 - Be Proactive not Reactive; Save \$ Millions of Dollars



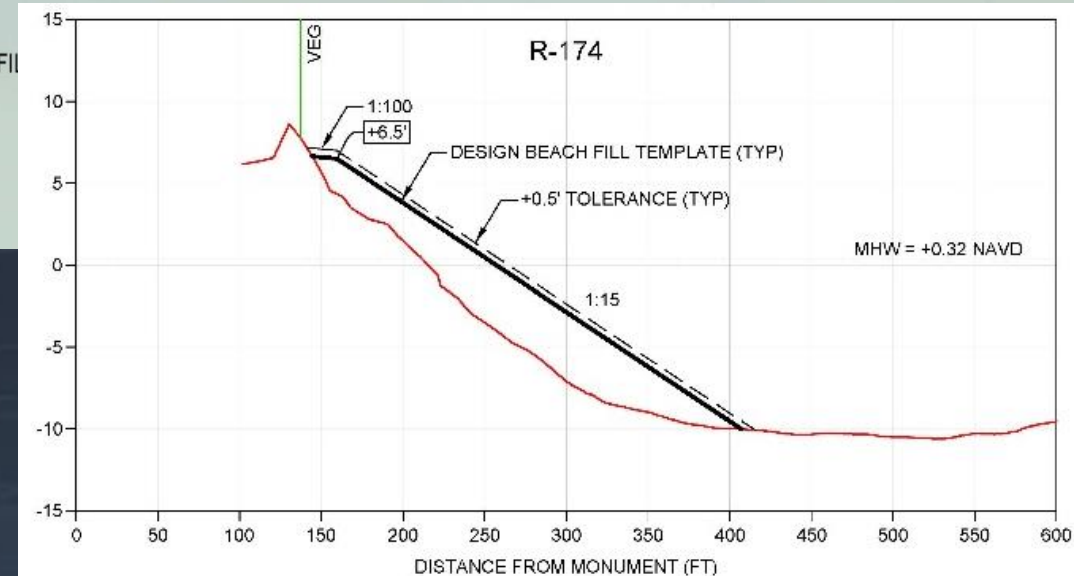
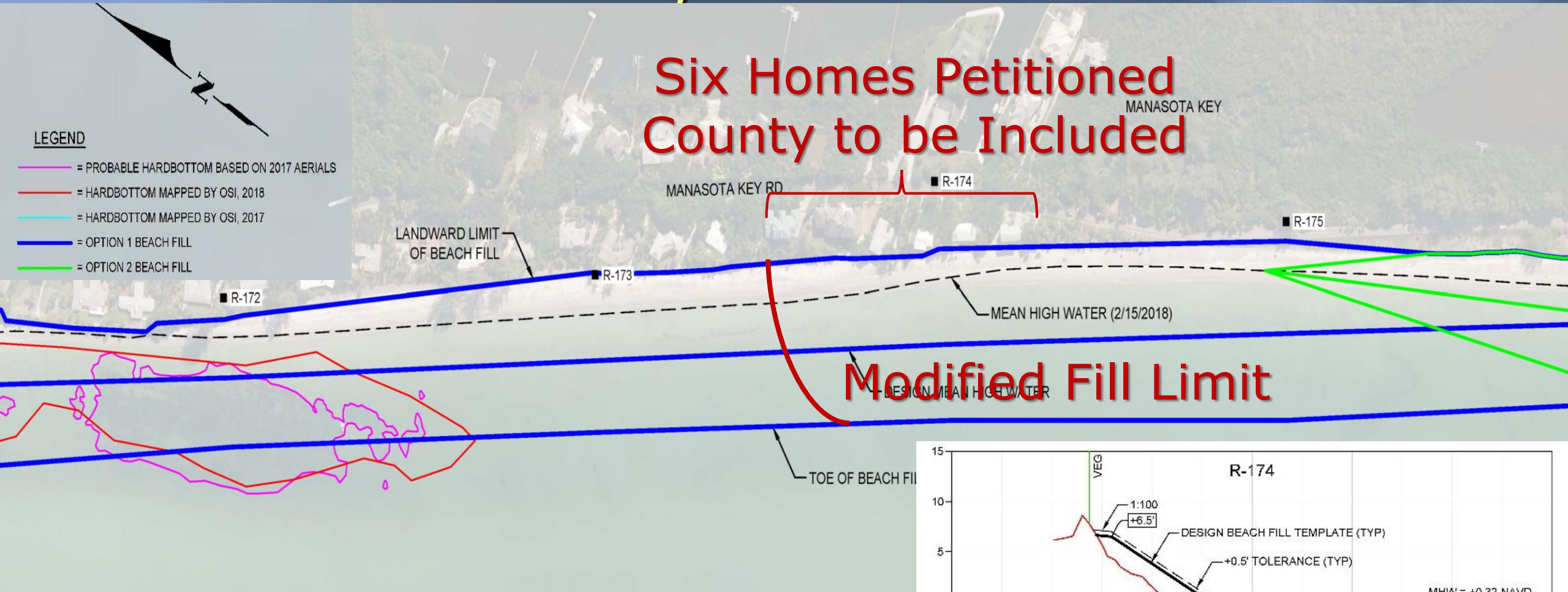
THE TRUE REGIONAL PERSPECTIVE

- Three Beach Fills
 - SA-MK, CH-MK, KI/DPI
- Volume = 1.25 MCY (3rd largest)
- 6+ Miles (4th Longest)
- 8 Offshore Borrow Areas (3MCY)
- Ranked 3rd in the State
- Cost Share ~ 35% = \$12.65M
- Only Regional Project



BUT WAIT, THERE'S MORE!

Six Homes Petitioned County to be Included



SHOW ME THE MONEY!

BEACH MANAGEMENT FUNDING ASSISTANCE PROGRAM

Potential to
Increase
Ranking

State Cost Sharing
Percentage = Length
of Publicly Accessible
Shoreline / Eligible
Project Length

Criteria	Max	CH	CH + SA	CH + SA + SB
Severity of Erosion	10	7.1	7.1	7.1
Threat to Upland Structures	10	1.4	1.4	1.4
Recreational/Economic Benefits	10	2.4	2.4	2.7
Congressional Authorization	5	0	0	0
USACE Project Agreement	5	0	0	0
Availability of FEMA Funding	5	0	0	5
10-Year Comp. Financial Plan *	2	2	2	2
Designated Funding Source *	2	2	2	2
Third Party Funding	2	0	0	0
Quarterly Reporting	2	0	0	2
Active Permits	1	0	0	1
Secured Local Funds	1	1	1	1
Previous Cost Sharing	1	0	0	1
Enhanced Longevity	3	0	0	3
Previously Restored Shoreline	5	0	0	5
Release of Appropriation	1	0	0	0
Nourishment Interval	8	6	6	6
Mitigating Inlet Effects	10	0	0	0
Innovative Technologies	3	0	0	0
Technologies New to Florida	2	0	0	0
Nesting Sea Turtle Refuges	5	0	0	0
Regionalization	5	0	5	5
Project Length	10	3.0	5.4	8.2
Construction Phase Projects	1	0	0	1
Economic Impact	2	1	1	1
Advanced Placement Loss	5	0	0	3
Erosion into Design Profile	1	0	0	1
Total		25.9	33.3	57.4

BRAGGING RIGHTS

- **Regional Beach Project**

- CEC FOPCC: \$30,550,320
- High: \$32,505,000 (+6.4%)
- Low: \$30,451,850 (- 0.3%)
- Avg: \$31,478,425

- **Mitigation Reef**

- CEC FOPCC: \$6,957,000
- High: \$9,100,000 (+30.8%)
- Low: \$6,817,100 (- 2.0%)
- Avg: \$7,955,030

ACKNOWLEDGMENTS

- Charlotte and Sarasota Counties
- Advisory Committees
- FDEP and FFWCC
- USACE, USFWS, and NMFS
- Local Residents, Ambassadors, and Stakeholders
- Cast and Crew of OSI, CEG, and CEC