



TAYLOR ENGINEERING, INC.

Offshore Sand Source Investigations for Counties in Southeast and Southwest Florida

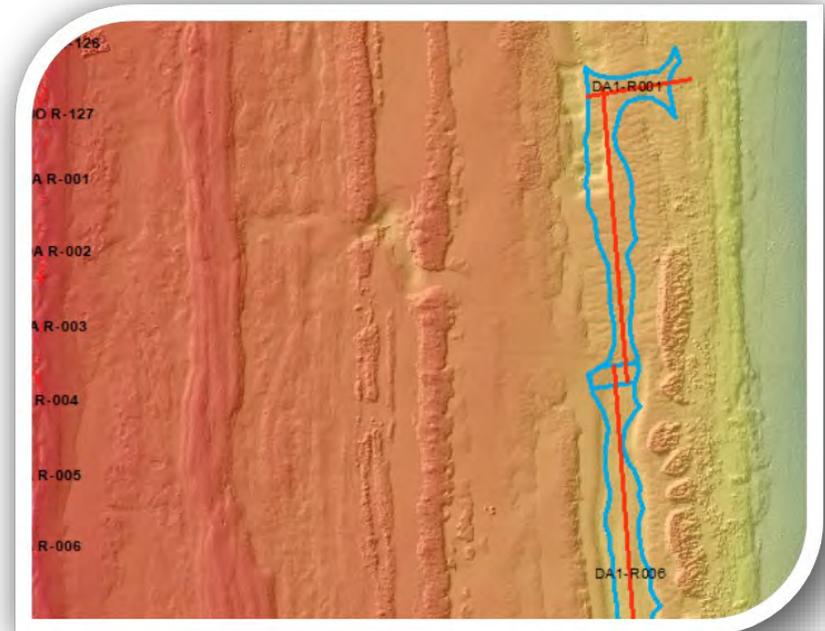
WEDA – Gulf Coast
November 2021



Will Warren, G.I.T.

Discussion Topics

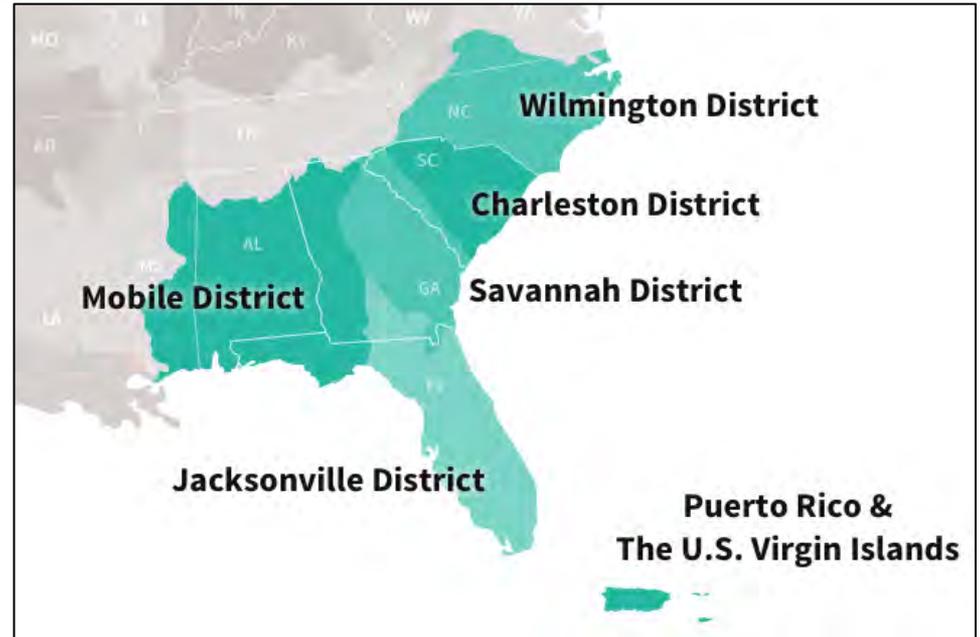
1. Project Background
 - Part 1
 - Part 2
2. Investigation Plans
3. Geophysical Investigations
4. Vibracore Collection
5. Laboratory Testing
6. Data Evaluation and Reporting
7. Individual County Results



Project Background

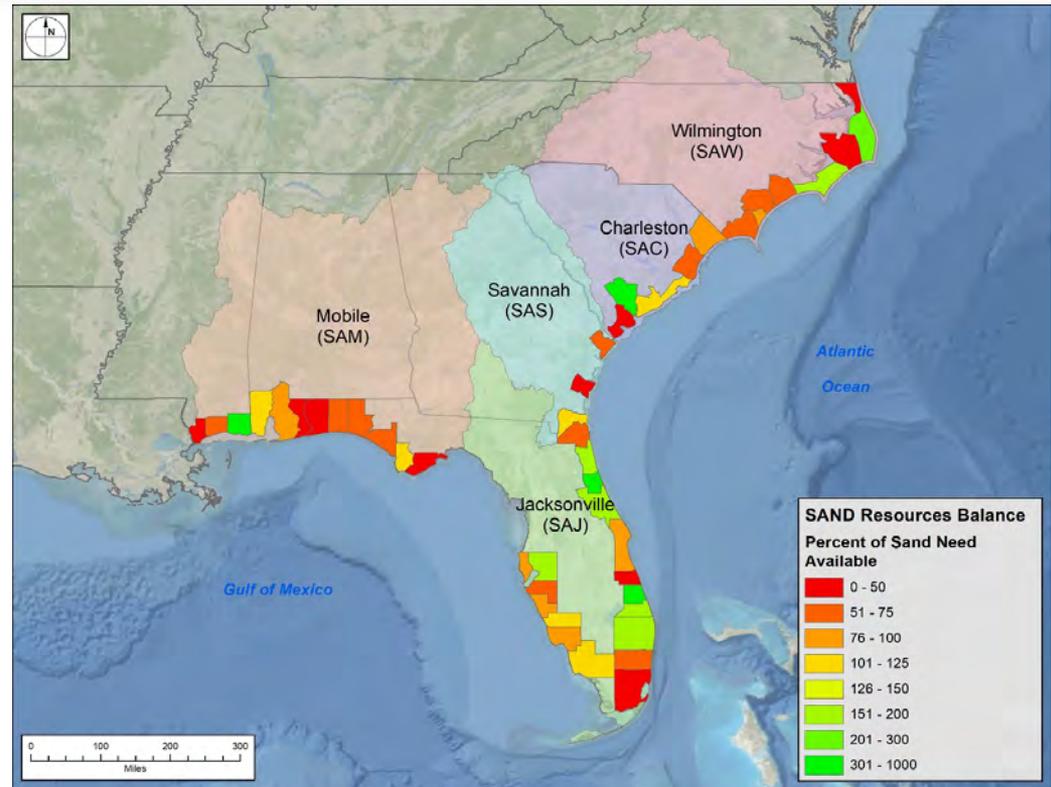
SAD SAND-South Atlantic Division Sand Availability Needs Determination

- Identify the regions sand needs and sources for the next 50 years
- Create a robust resource to enhance coastal resilience
 - Geodatabase including sand needs and sand sources



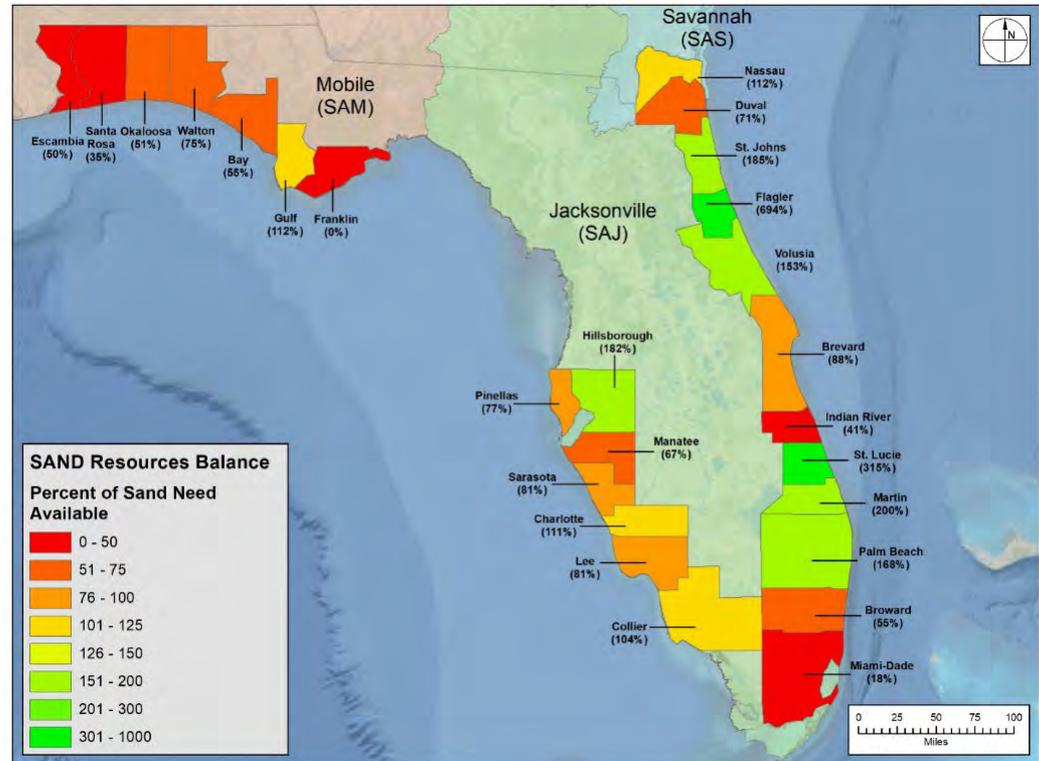
Project Background - Part 1

- Comprehensive resource documenting all beach nourishment needs and sediment availability in SAD
- Evaluated 50-year sand needs for each project, producing an overall need for each county
- Sources included Regional Sediment Management (RSM) sources and offshore borrow areas

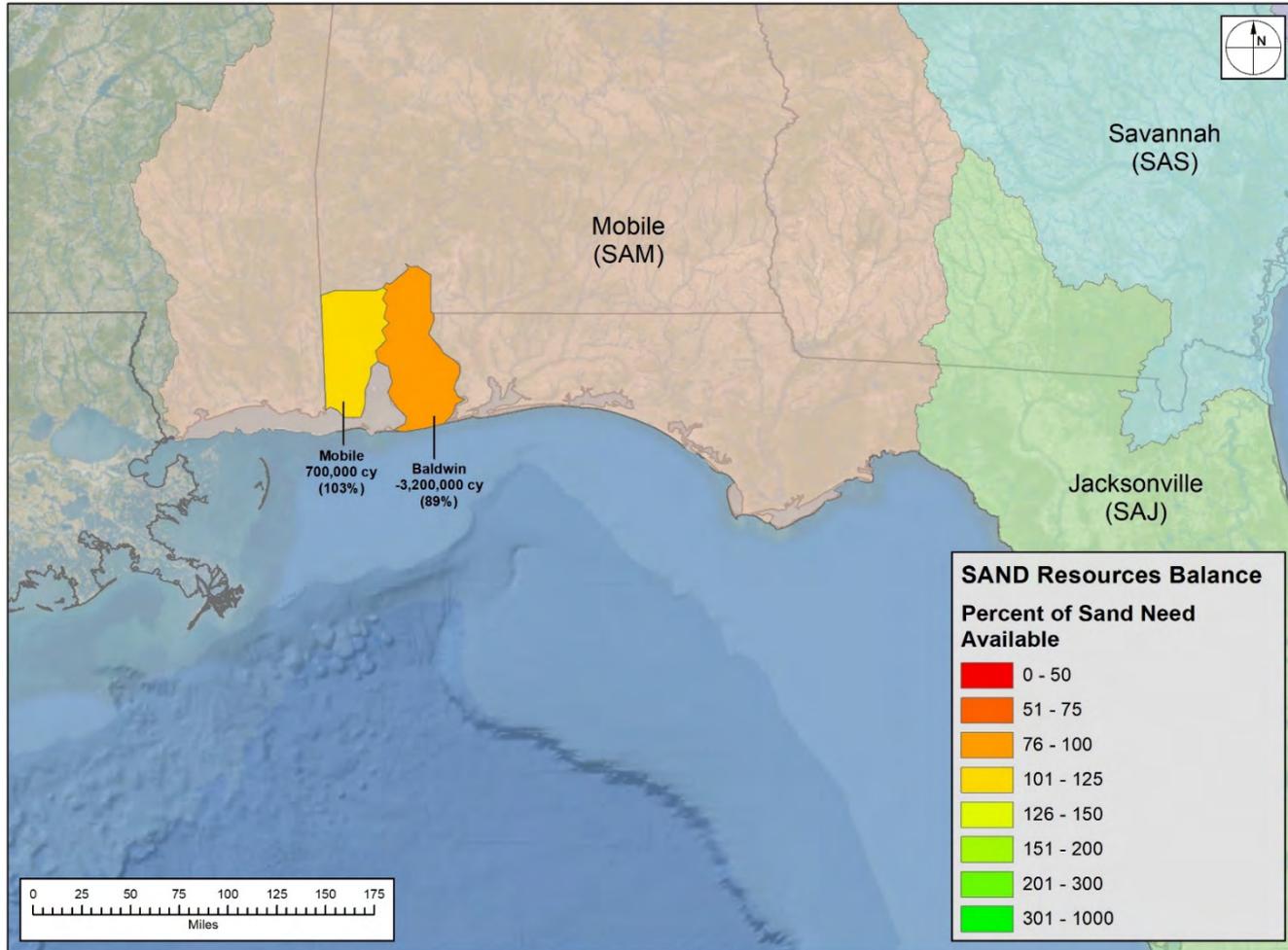


Project Background - Part 1

- Counties within the South Atlantic Division Jacksonville District (SAJ) with the largest sand deficit were identified for a comprehensive off-shore sand search
- Counties include:
 - Broward
 - Miami-Dade
 - Manatee
 - Sarasota

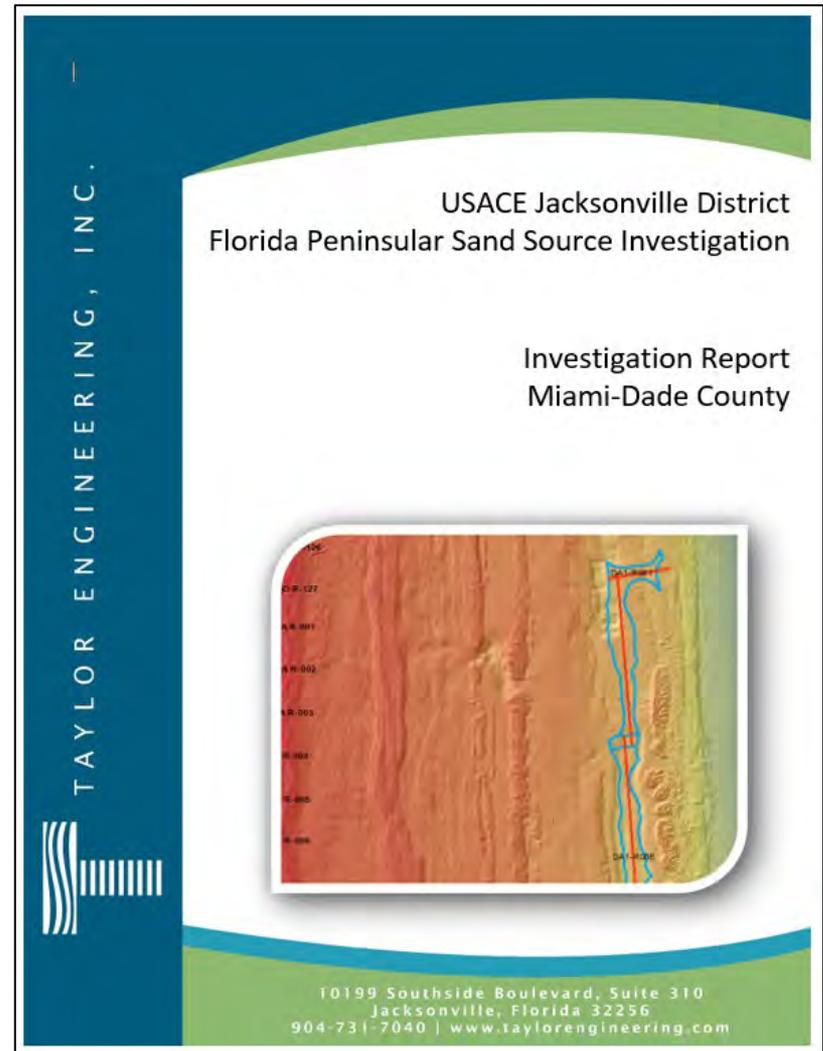


Project Background - Part 1



Project Background - Part 2

- Collect and analyze new offshore sediment data
 - Geophysical Surveys
 - Vibracores
- Priority Counties from Part 1



Project Background – Timeline

DELIVERABLE/MILESTONE	COMPLETION DATE
TASK 12 – IDENTIFICATION OF POTENTIAL BORROW AREAS FOR SAJ SAND NEEDS	
Identification of Potential Borrow Areas Complete	28 November 2019
TASK 13 – INVESTIGATION PLANS	
GIS Shapefiles of Investigation Areas	2 January 2020
Draft Investigation Plans Submitted	2 January 2020
TASK 14 – GEOPHYSICAL SURVEYS	
Geophysical Surveys Complete SE FL	23 April 2020
Final Investigation Plans Submitted SE FL	30 April 2020
Geophysical Surveys Complete SW FL	30 October 2020
Final Investigation Plans Submitted SW FL	13 November 2020
TASK 15 – VIBRACORE COLLECTION	
Vibracore Collection Complete SE FL	1 July 2020
Vibracore Collection Complete SW FL	13 December 2020
TASK 16 – VIBRACORE COLLECTION	
Final Logs and gINT Data Submitted	6 March 2021
Final Reports Submitted	30 April 2021

Investigation Plan – Available Data

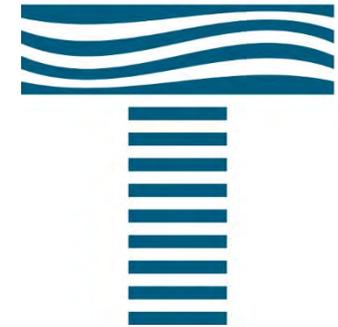


US Army Corps
of Engineers®



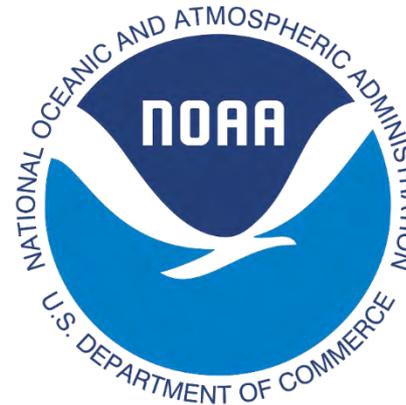
BOEM
BUREAU OF OCEAN ENERGY MANAGEMENT

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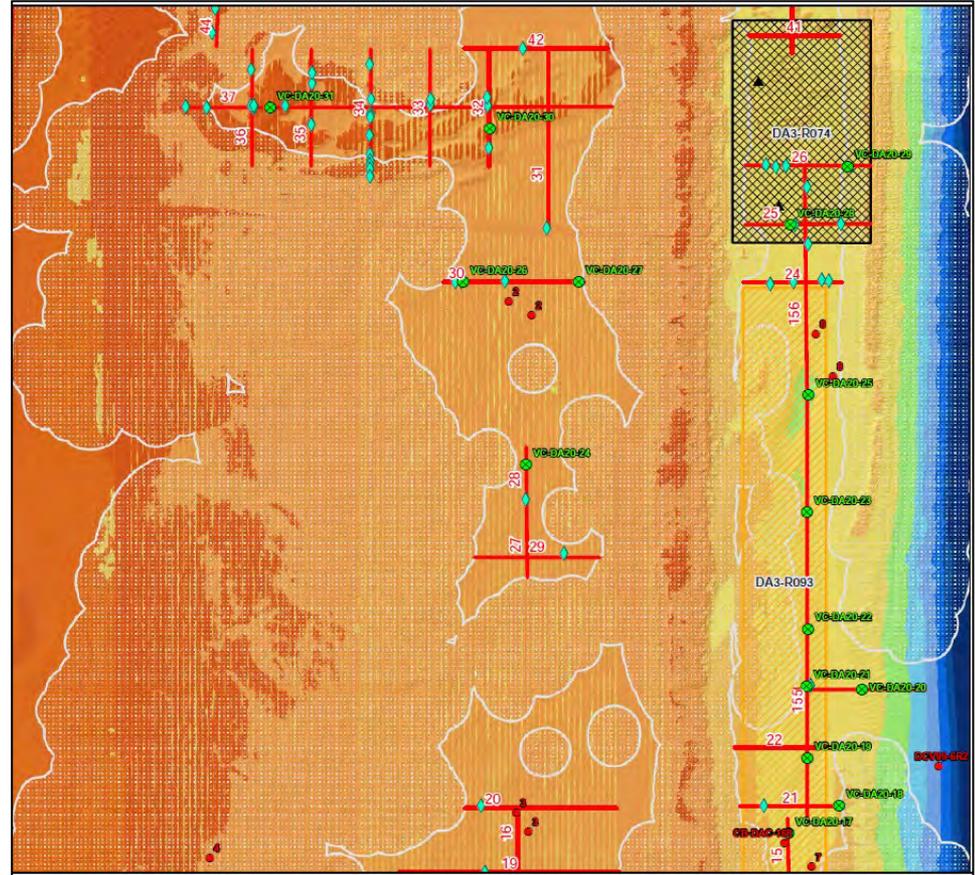
asbpa

American Shore & Beach Preservation Association
Advocating for healthy coastlines



Investigation Plan

- Review of existing borrow areas and data
- Identify investigation areas



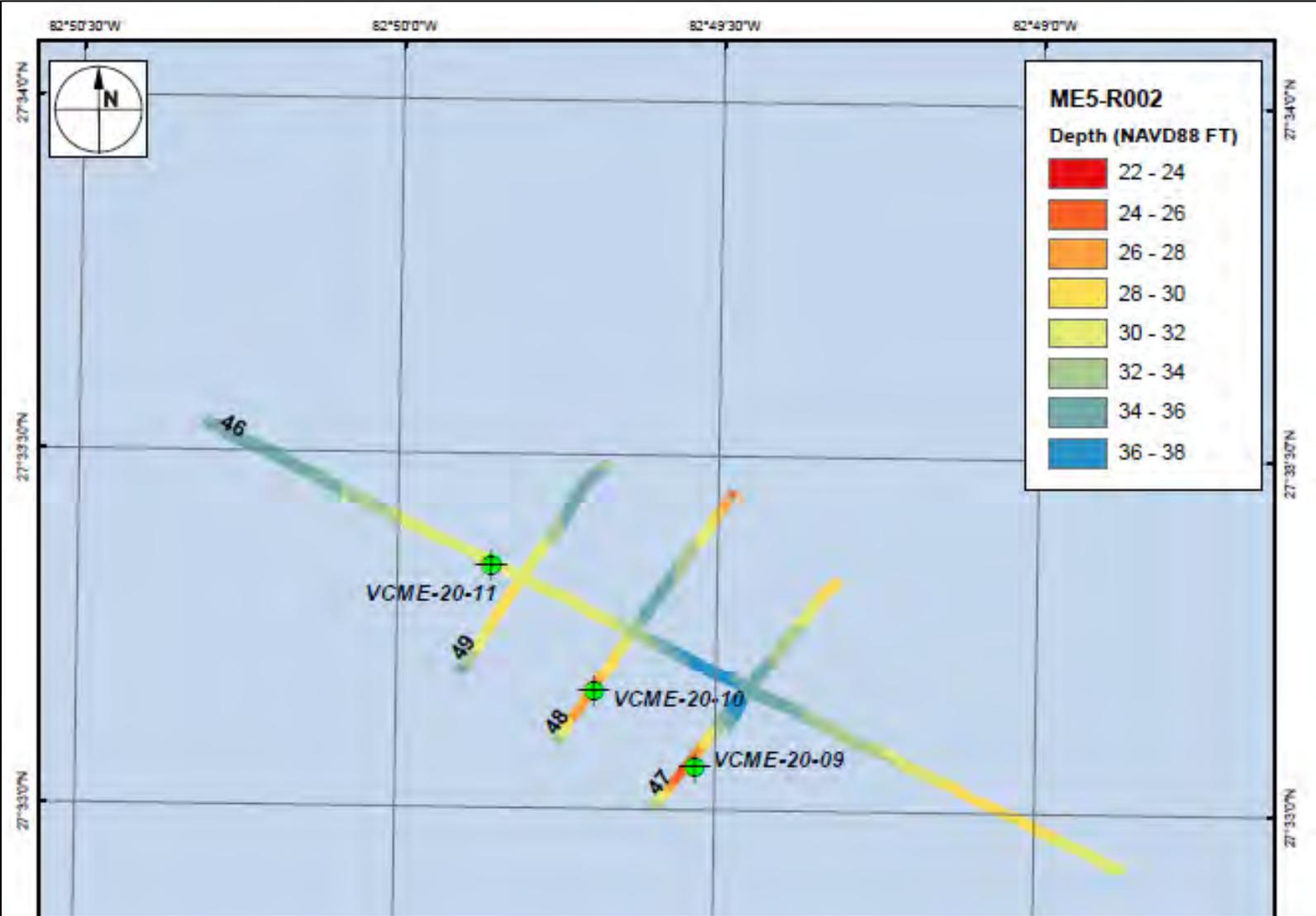
ex. Miami-Dade County Investigation Plan

Geophysical Investigations

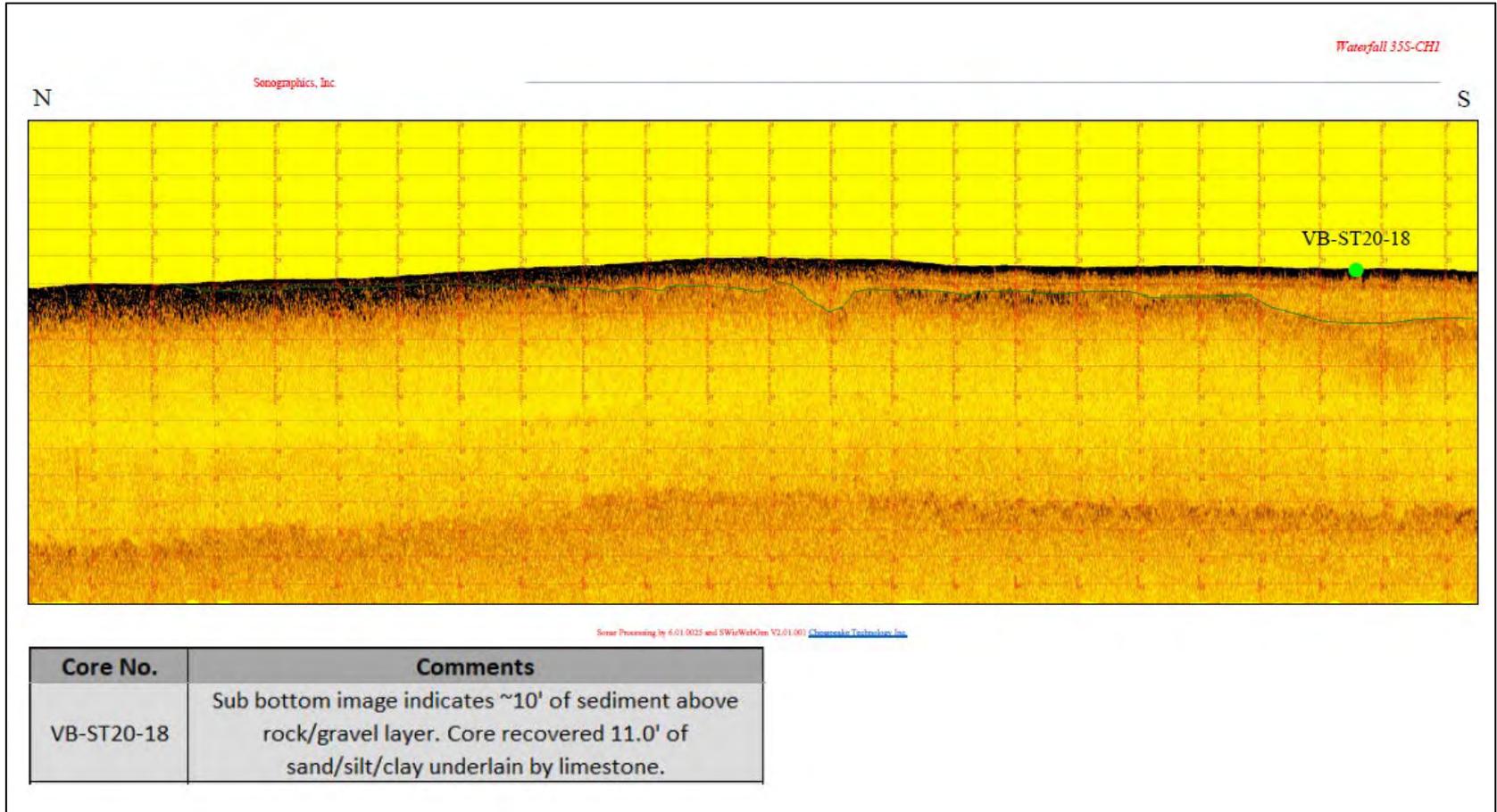
- Approximately 80 miles on East Coast & 50 miles on West Coast
 - Multi-Beam
 - Sub-Bottom
 - Side Scan
 - Magnetometer



Geophysical Investigations – Multibeam

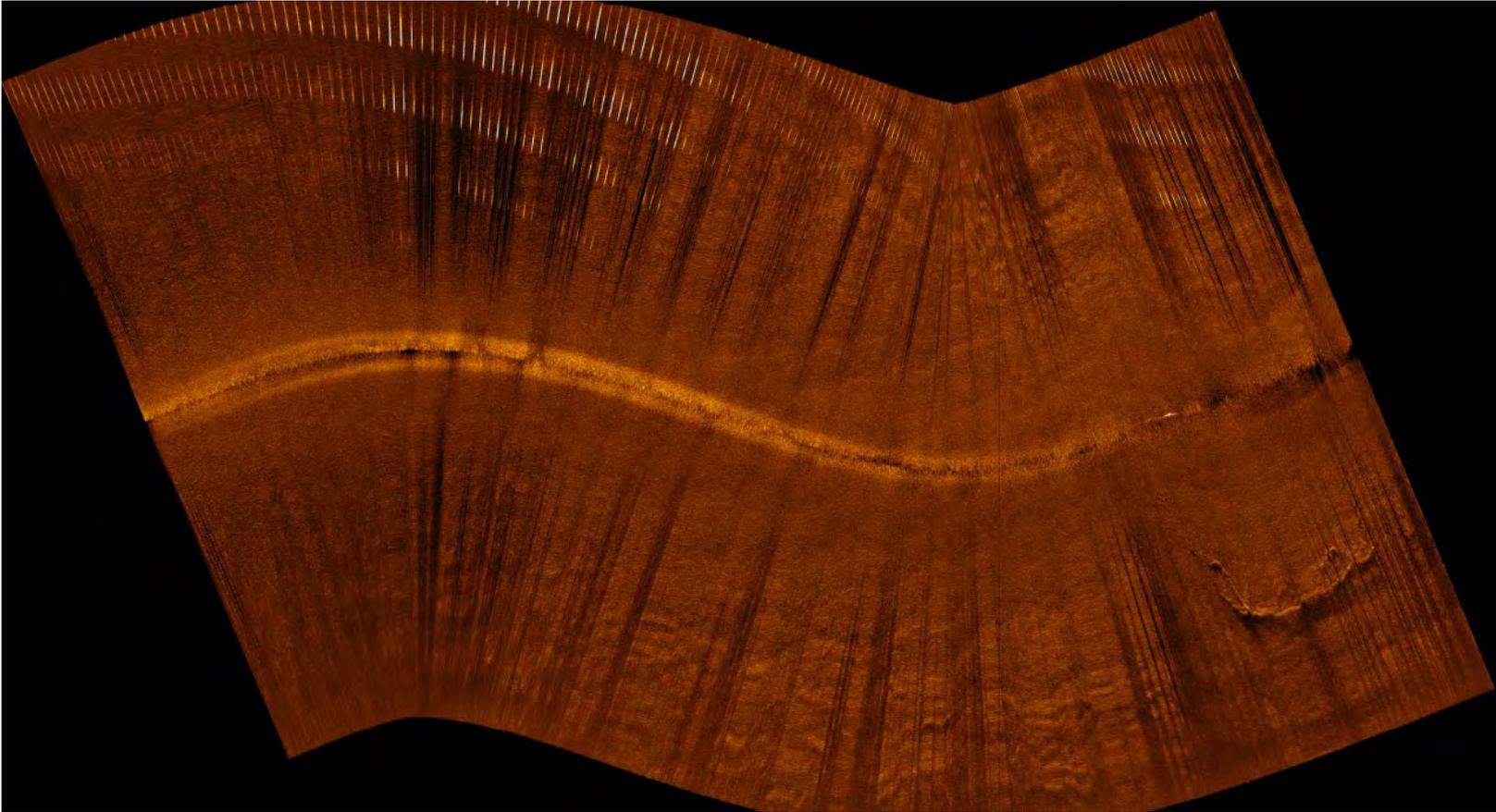


Geophysical Investigations – Sub-Bottom

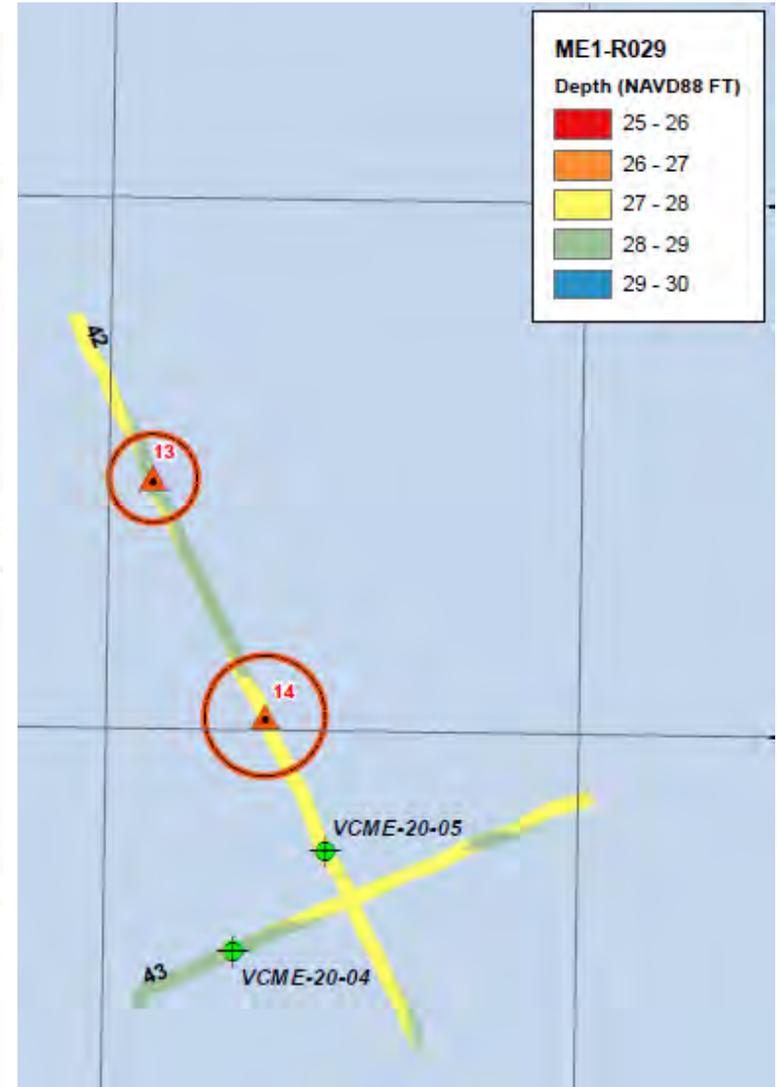
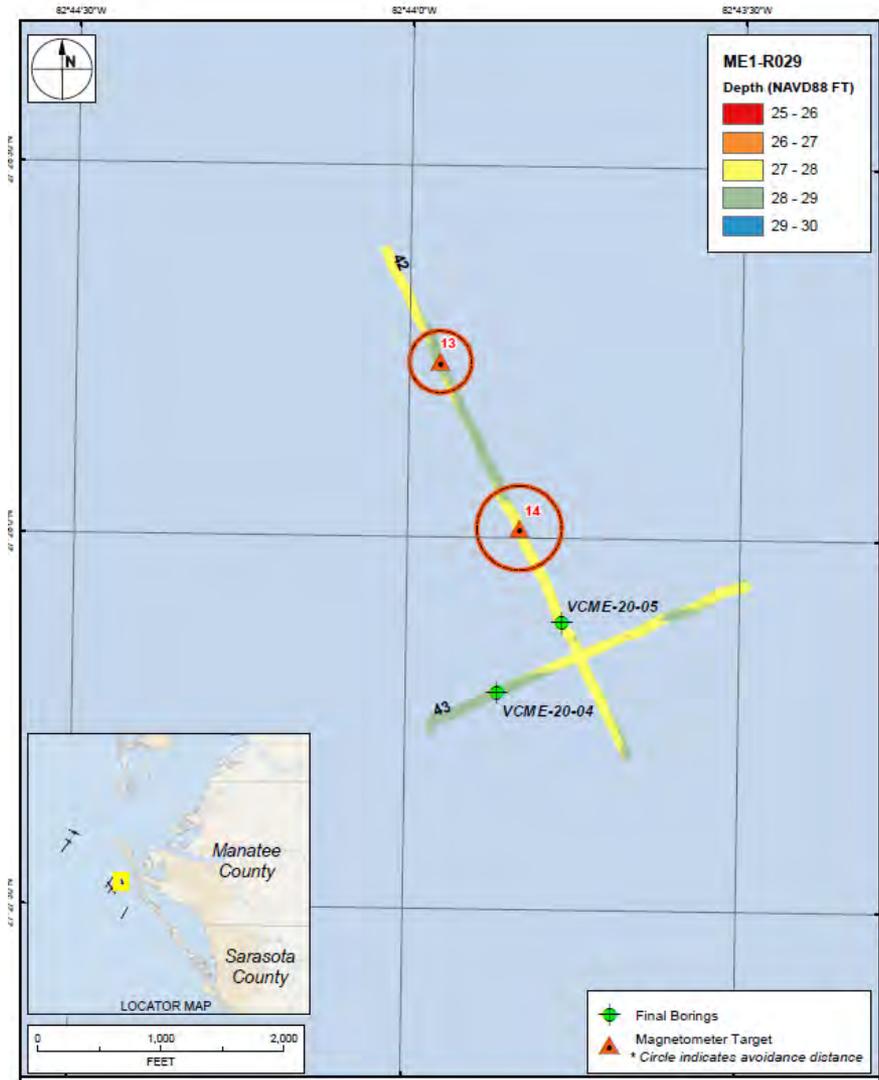




Geophysical Investigations – Side Scan

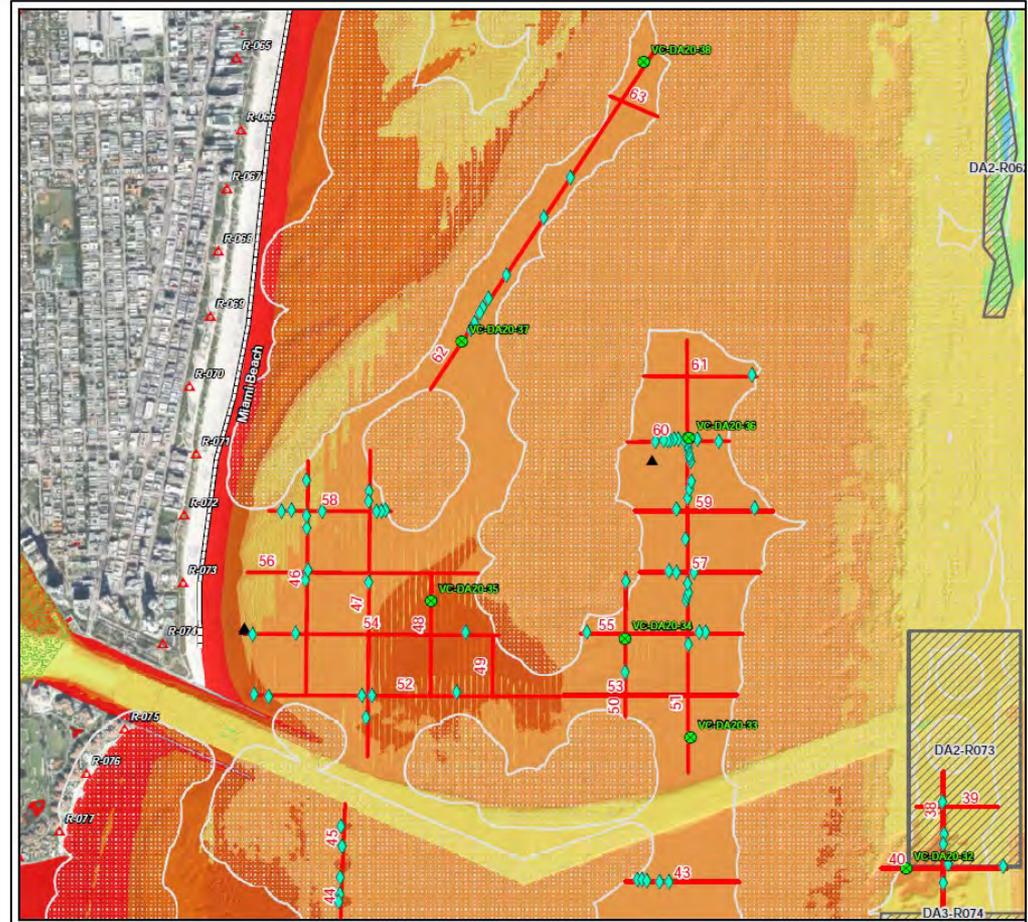


Geophysical Investigations – Magnetometer

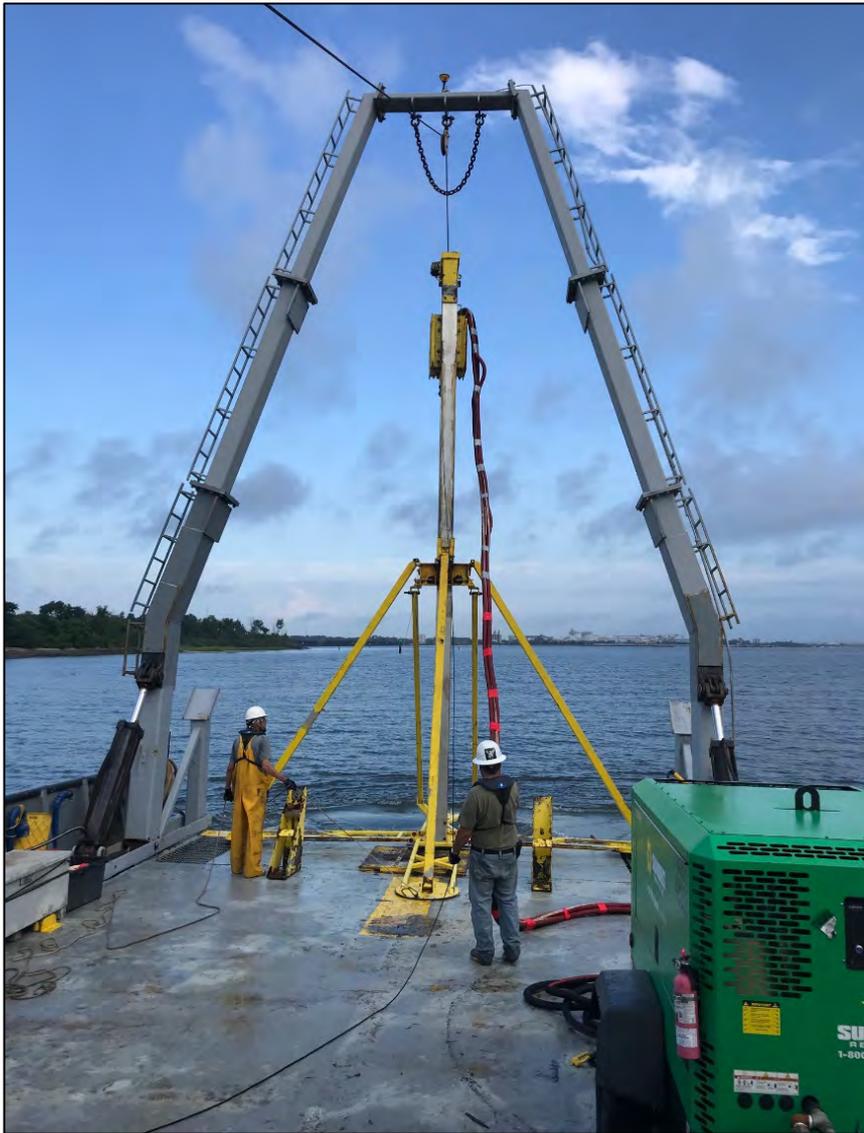


Vibracore Collection

- 120 Vibracore Borings
 - Assumed average of 6 borings per 1 square mile area
 - Reconnaissance level 1000' spacing



Vibracore Collection



Laboratory Testing

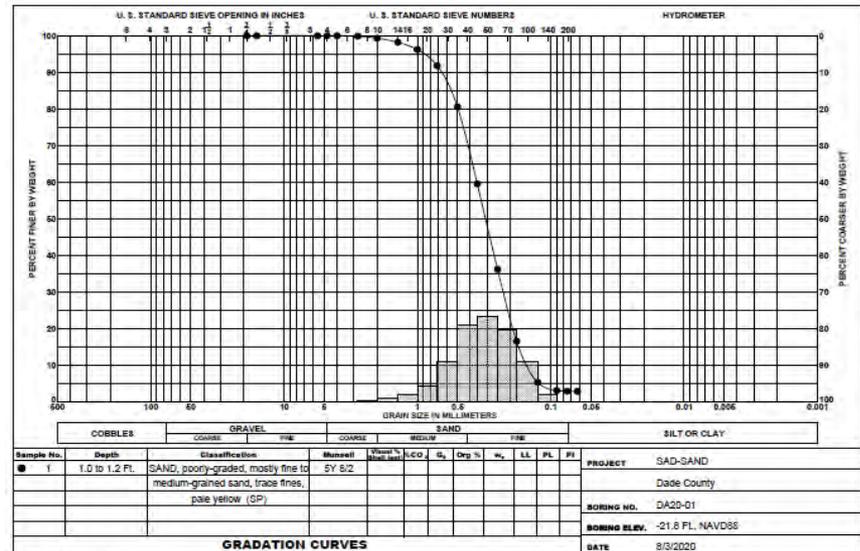


Data Evaluation and Reporting

Boring Designation: DA20-01

DRILLING LOG		DIVISION	INSTALLATION	SHEET
South Atlantic		Jacksonville, FL	OF 7 SHEETS	
1. PROJECT SAD-SAND Dade County		8. SIZE AND TYPE OF BIT 4 inch		
2. BORING DESIGNATION DA20-01		10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83
3. DRILLING AGENCY Andril		11. MANUFACTURER'S DESIGNATION OF DRILL Alpine Pneumatic Vibracore		VERTICAL NAVD88
4. NAME OF DRILLER Tim Clarkson		12. TOTAL SAMPLES		DISTURBED 6
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES 0		UNDISTURBED (UC) 0
6. THICKNESS OF OVERBURDEN N/A		14. ELEVATION GROUND WATER N/A		
7. DEPTH DRILLED INTO ROCK N/A		15. DATE BORING STARTED: 06-23-20 COMPLETED: 06-23-20		
8. TOTAL DEPTH OF BORING 18.1 FT		16. ELEVATION TOP OF BORING -21.8 FT		
		17. TOTAL RECOVERY FOR BORING 80.5%		
		18. SIGNATURE AND TITLE OF INSPECTOR Bill Aley, P. G., Geologist		

ELEV. (FT)	DEPTH (FT)	CLASSIFICATION OF MATERIALS	% REC.	REMARKS
-21.8	0.0	SAND, well-graded, mostly fine to medium-grained sand-sized carbonate, little silt, trace fine gravel-sized coarse, 5Y 5/2 pale yellow (SW)	1	-22.8
			2	-24.8
-28.4	6.6	SAND, well-graded, mostly fine to medium-grained sand-sized carbonate, little silt, few fine gravel, 5Y 5/2 pale yellow (SW)	3	-27.8
			4	-29.8
			5	-31.8
			6	-34.8
-38.4	14.8	SILT, inorganic, medium plasticity, soft		



SAJ FORM 1836
JUN 02

(Continued)

Data Evaluation and Reporting

State / Territory	Silt Passing #230 Sieve	Silt Passing #200 Sieve	Material Retained on #4 Sieve	Mean Grain Size (mm)	Munsell Color Value	Rules / Regulations
North Carolina	---	10%	10% ¹	similar to beach ²		15A NCAC 07H .0312, "Technical Standards for Beach Fill Projects" (NCDEQ 2019)
South Carolina	5%	---	5%	similar to beach		U.S. Fish & Wildlife Service and SC DHEC Coastal Division Code § 30-13.N.(2)(a) (SC DHEC 2020c)
Georgia	---	10%	5% ³	0.15 - 0.3	10yr6.5/1 to 10yr7.0/1	GA DNR Requirements for Beach Nourishment Projects (GA DNR 2020)
Florida	5%	---	5%	similar to beach		Florida Administrative Code 62B-41.007(2)(j) (FDEP 2017)
Alabama	similar to existing beach					No specific regulation
Mississippi	similar to existing beach					No specific regulation
Puerto Rico	similar to existing beach					No specific regulation
USVI	similar to existing beach					No specific regulation

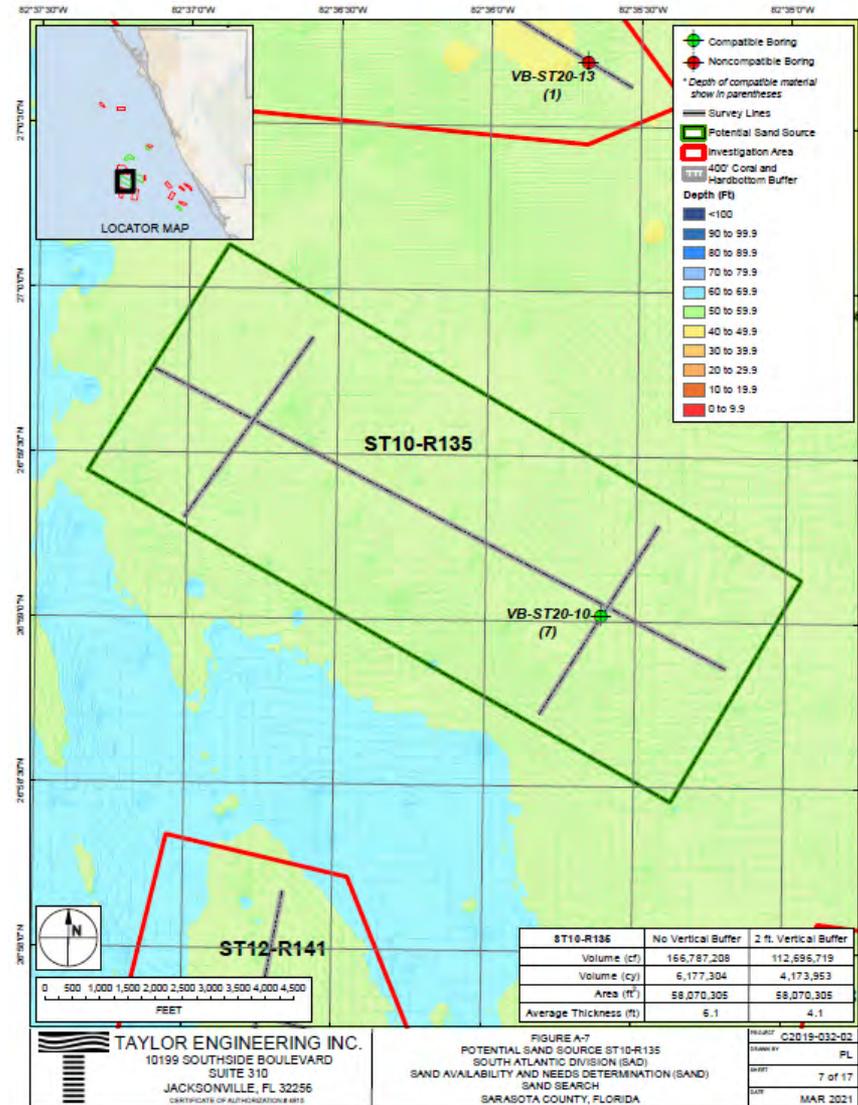
¹ Shell content less than or equal to (</=) average of native beach plus 15%.
² The average percent by weight of fine-grained, granular, or gravel sediments shall not exceed the average of the recipient beach plus 5%.
³ Shell content should remain below 15% of total weight.

Data Evaluation and Reporting

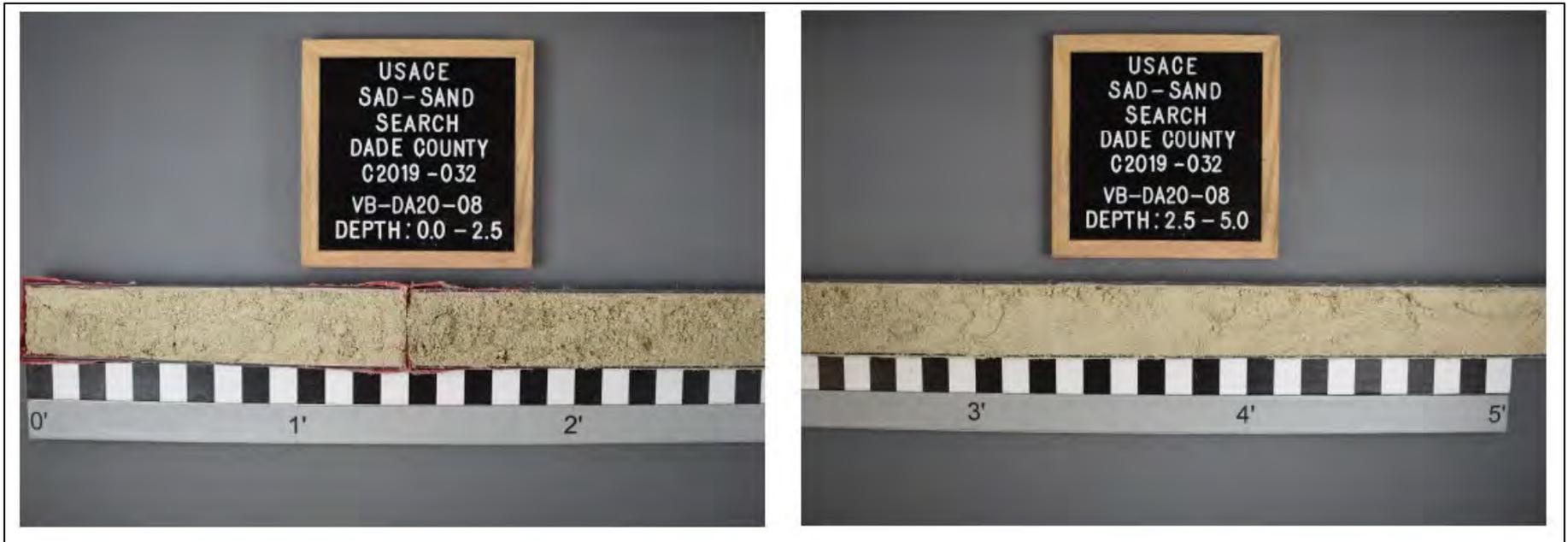
- Miami-Dade County

Parameter	Compatible	Potential	Noncompatible
Moist Munsell Color	value \geq 5	NA	value $<$ 5
Gravel Content (% retained #4 sieve)	$<$ 5%	5 - 10%	$>$ 10%
Fines Content (% passing #230 sieve)	$<$ 5%	5 - 7%	$>$ 7%
Mean Grain Size (mm)	0.35 - 0.65 mm	0.25 - 0.35 mm or 0.65 - 0.75 mm	$<$ 0.25 mm or $>$ 0.75 mm

Data Evaluation and Reporting



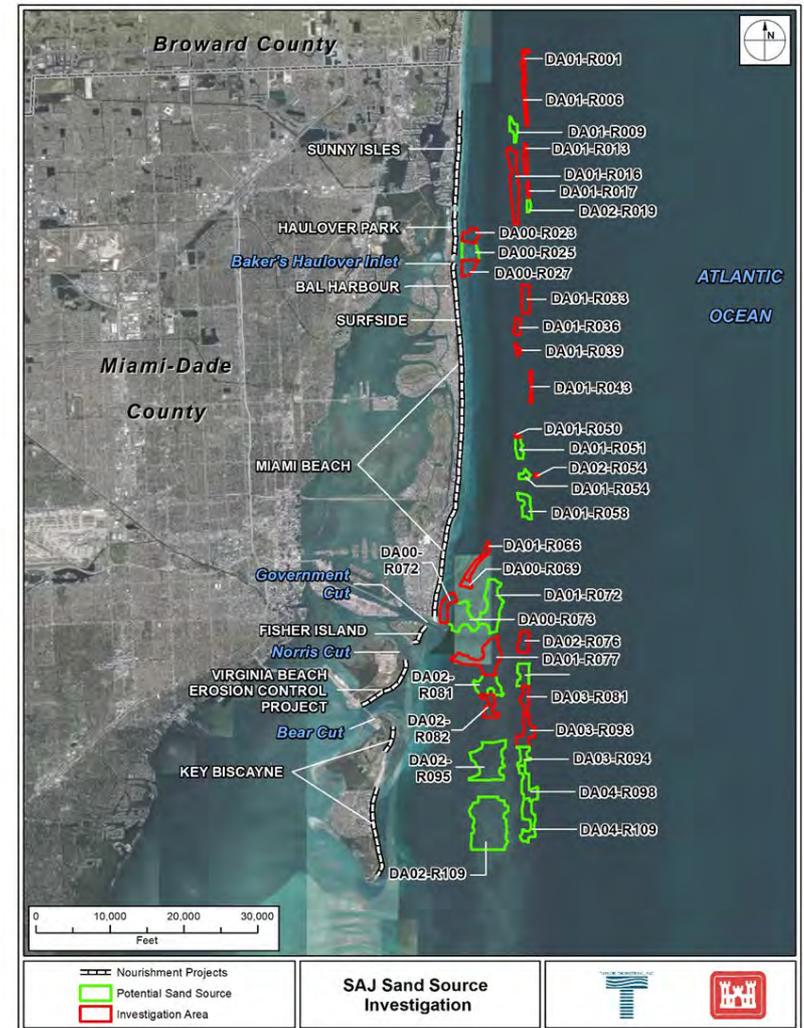
Results – Miami-Dade



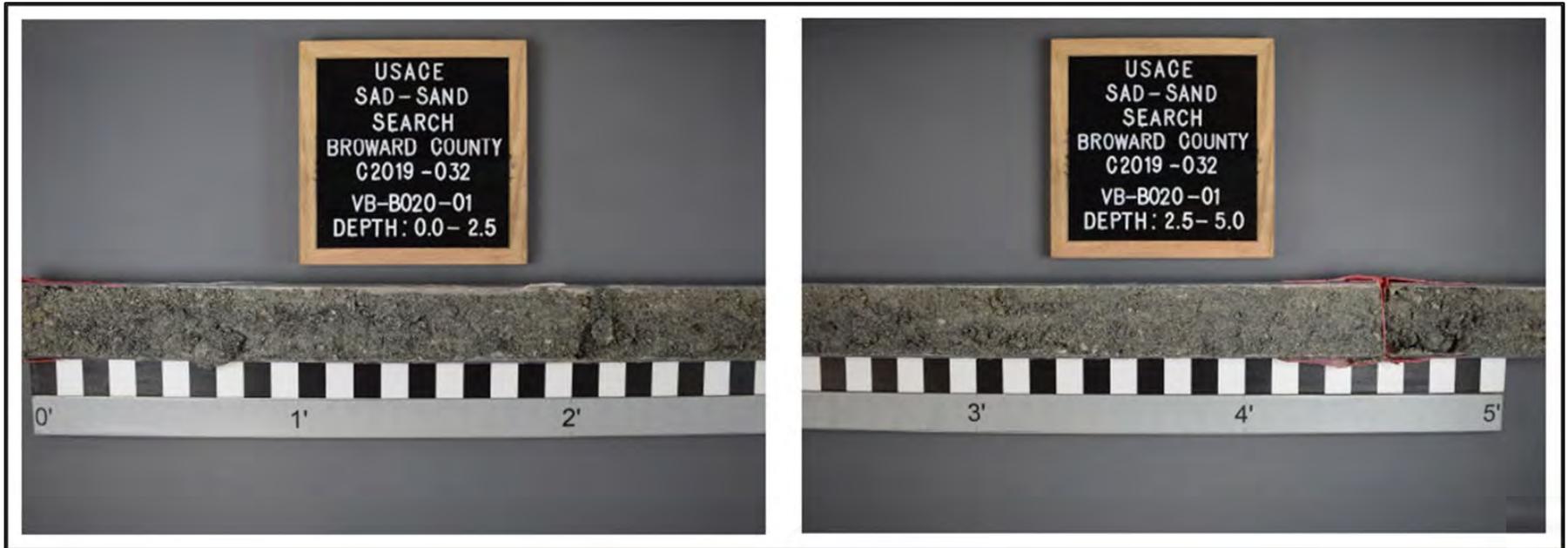
- 36 Investigation Areas
- 59 Vibracores
 - 34 hit refusal
- 252 Samples

Results – Miami-Dade

- 19 of 36 areas beach compatible
- 15 volume contributing
- 6.6 MCY



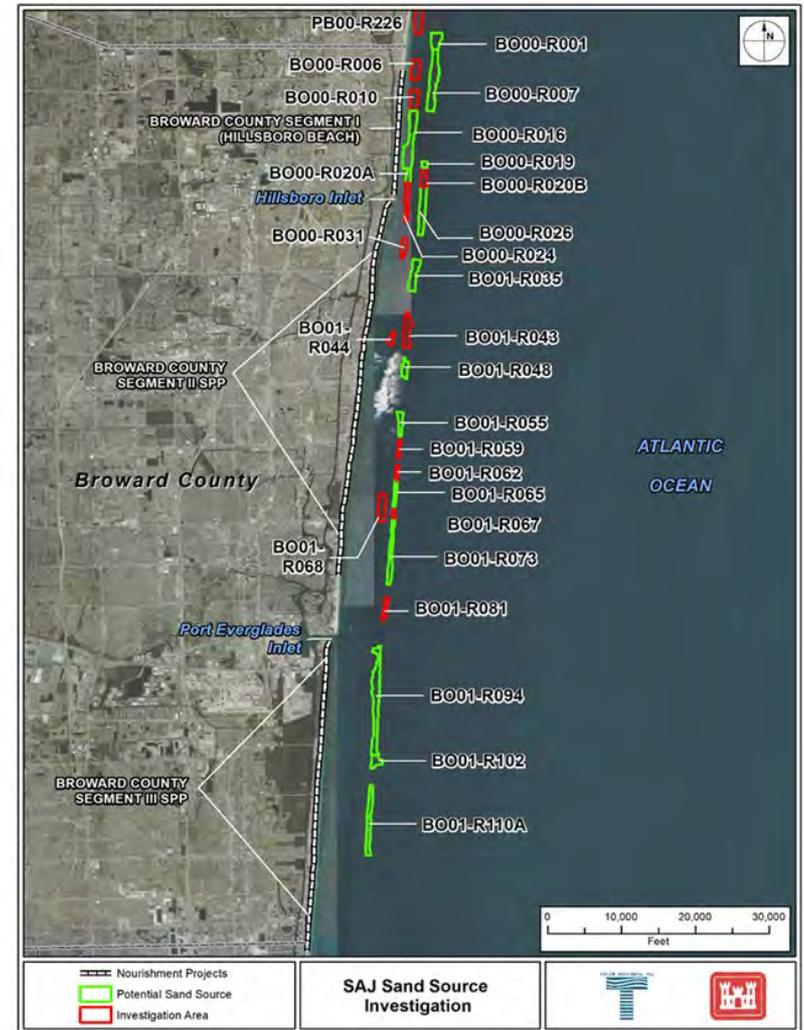
Results – Broward



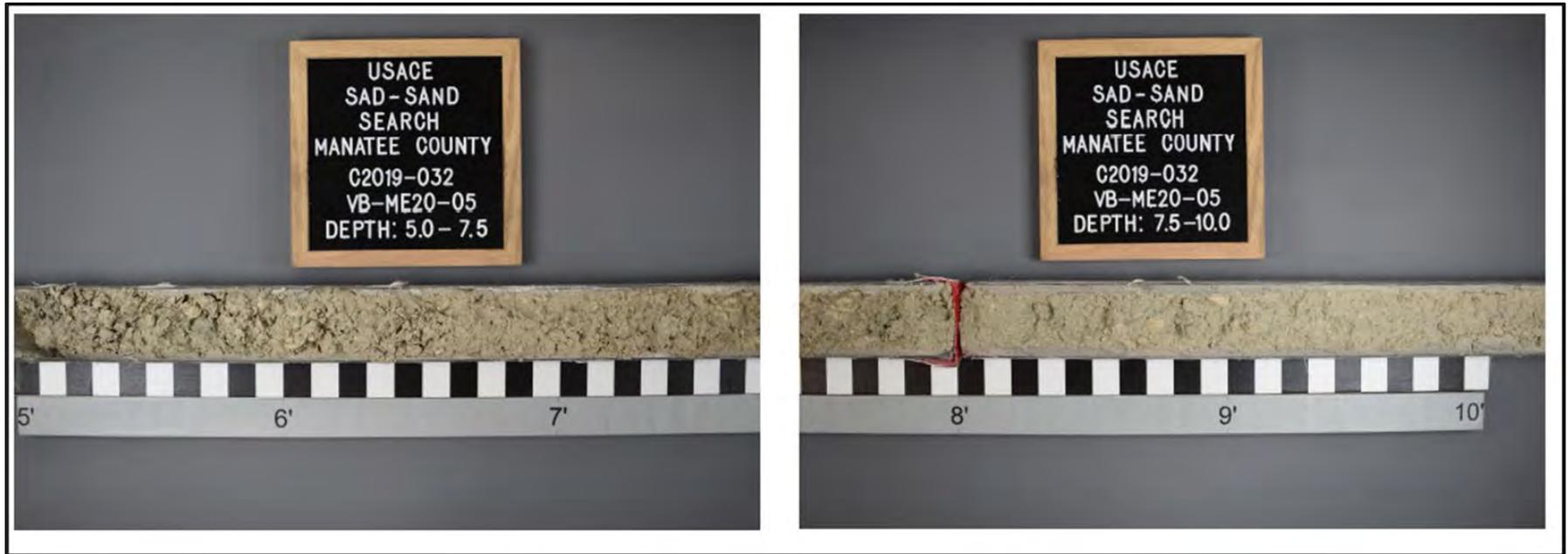
- 27 Investigation Areas
- 31 Vibracores
 - 12 hit refusal
- 130 Samples

Results – Broward

- 18 of 27 areas beach compatible
- 14 volume contributing
- 11.4 MCY



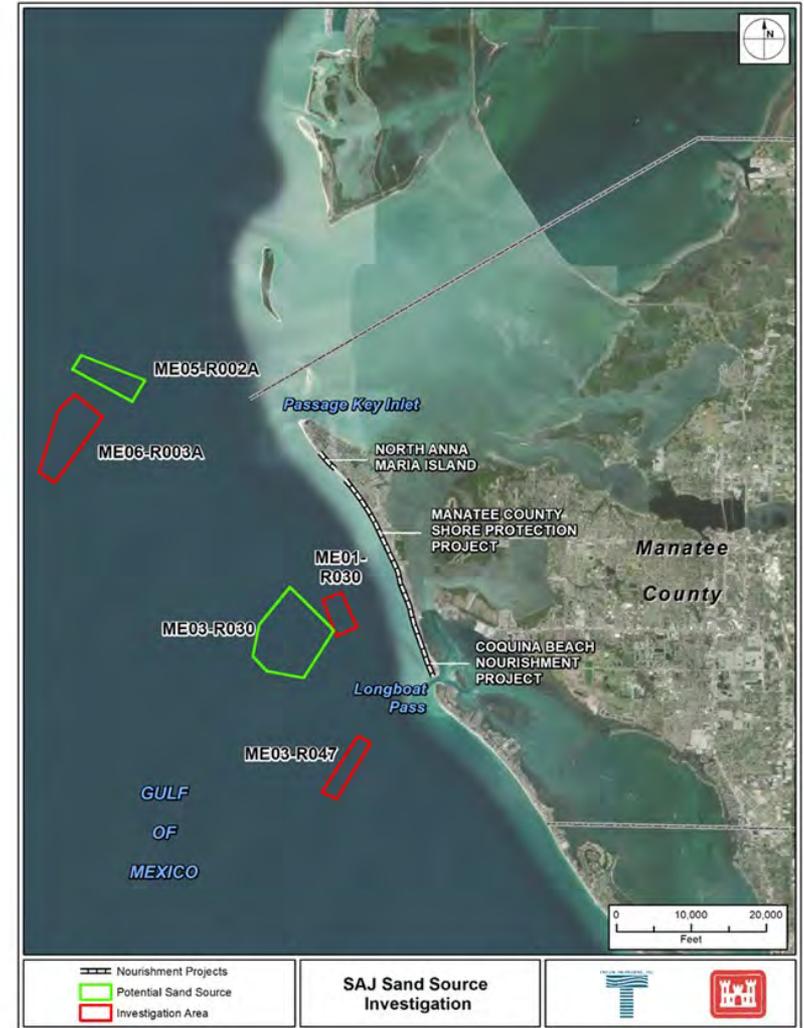
Results – Manatee



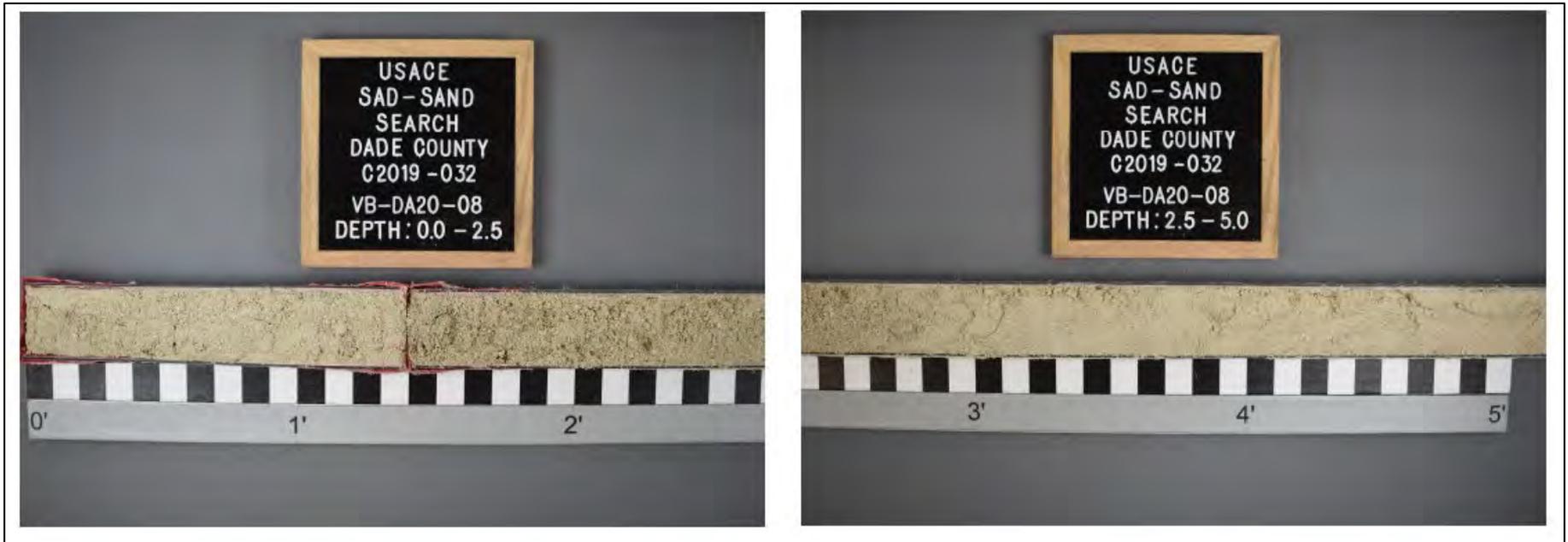
- 5 Investigation Areas
- 11 Vibracores
 - 7 hit refusal
- 52 Samples

Results – Manatee

- 4 of 5 areas beach compatible
- 2 volume contributing
- 14.3 MCY



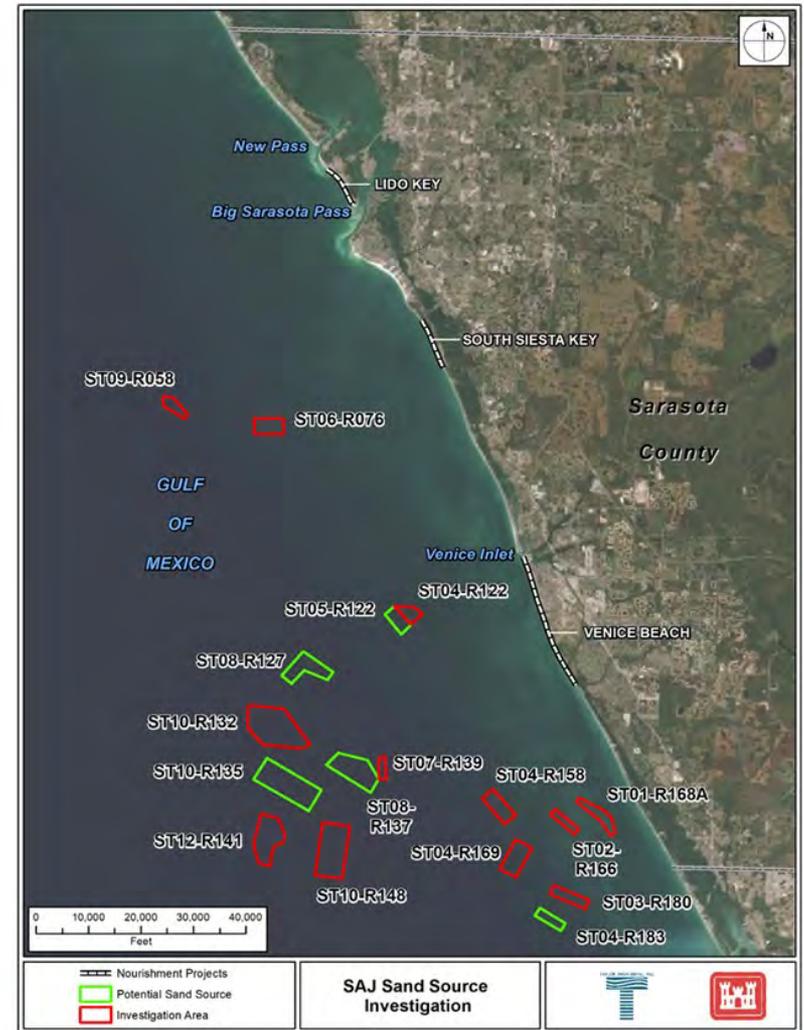
Results – Sarasota



- 17 Investigation Areas
- 19 Vibracores
 - 14 hit refusal
- 78 Samples

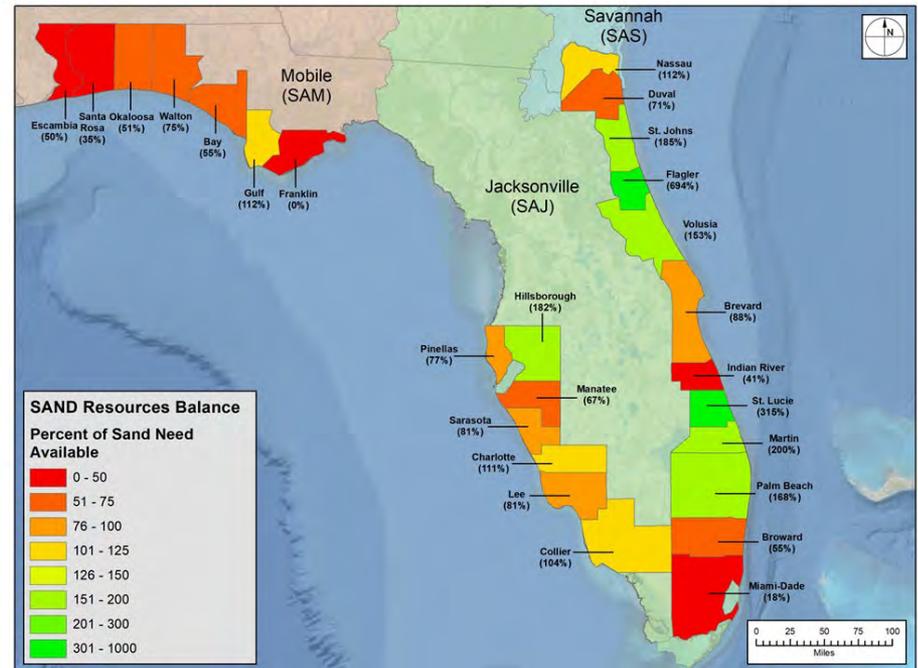
Results – Sarasota

- 13 of 17 areas beach compatible
- 5 volume contributing
- 6.5 MCY



Summary

- ✓ 4 counties identified
- ✓ 130 miles of geophysical surveys
- ✓ 120 vibracores collected
- ✓ 85 investigation areas
- ✓ 29 volume contributing
- ✓ 39 MCY



Questions?

