



The Future of Offshore Sand Sources in North Palm Beach County

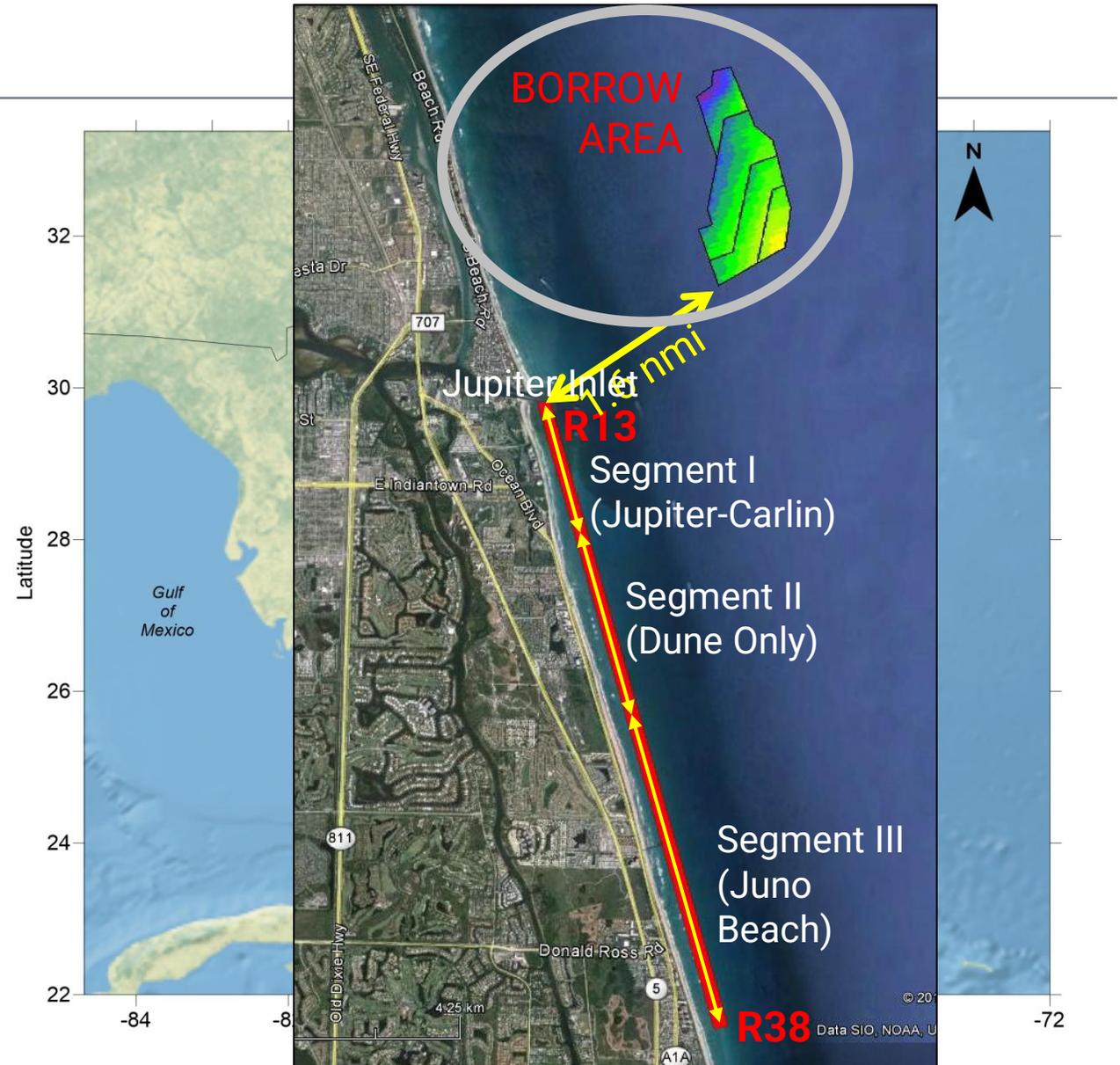
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FSBPA 2026 National Conference
on Beach Preservation Technology



Project Location

- ◆ North County Comprehensive Shore Protection Project (NCCSPP)
- ◆ Palm Beach County
- ◆ Extends 4.9 miles from Jupiter Inlet (R-13) south to R-38
- ◆ NCCSPP Combines Jupiter-Carlin and Juno Beach Projects to facilitate regional management as a contiguous project



North County Comprehensive Shore Protection Project (NCCSPP)

- ◆ 3 renourishments to date with North Jupiter Borrow Area
 - 2019/20 Segment I (Jupiter-Carlin), FCCE
 - 2020/21 Segment III (Juno Beach)
 - 2021/22 Segment I (Jupiter-Carlin)

Segment III Construction in 2021:



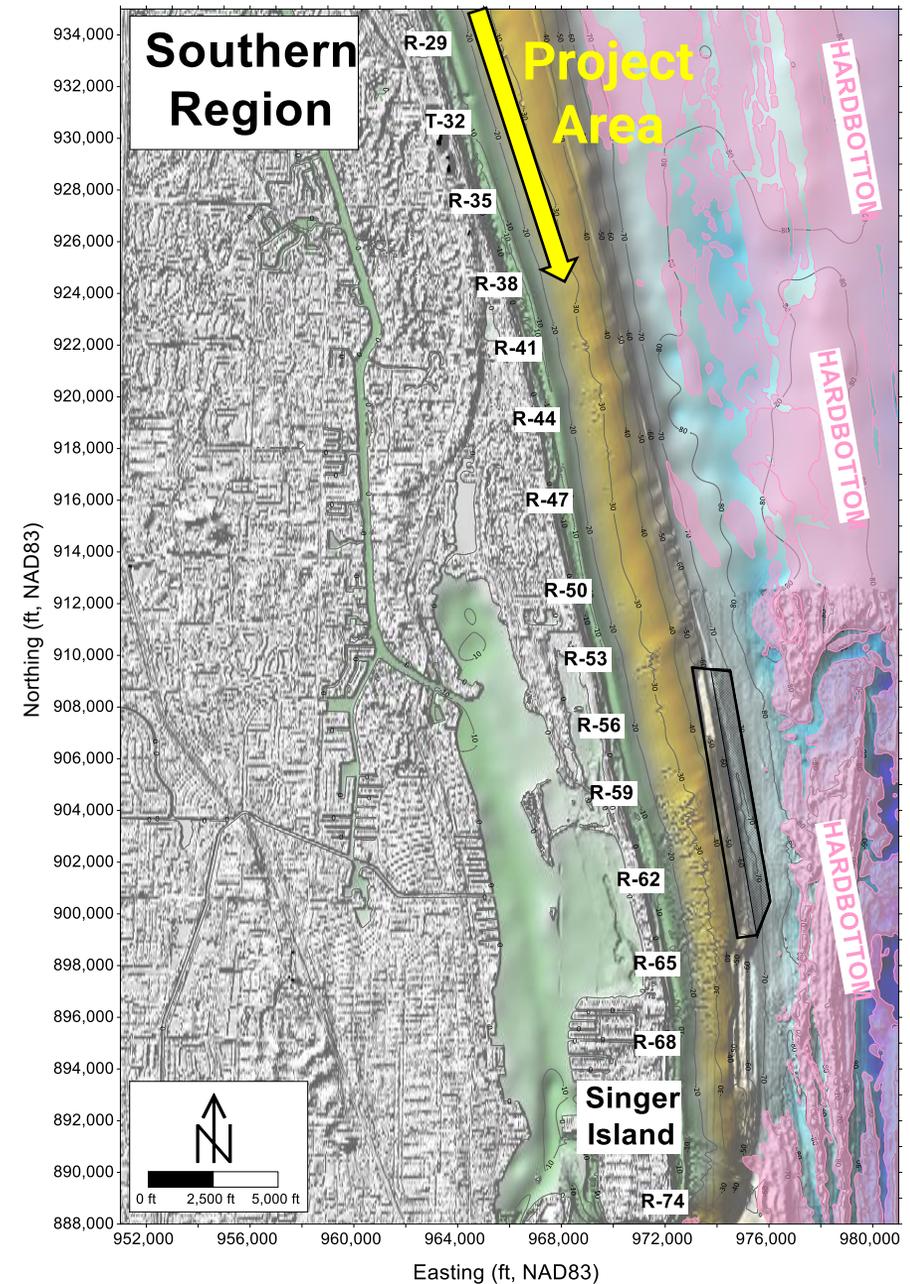
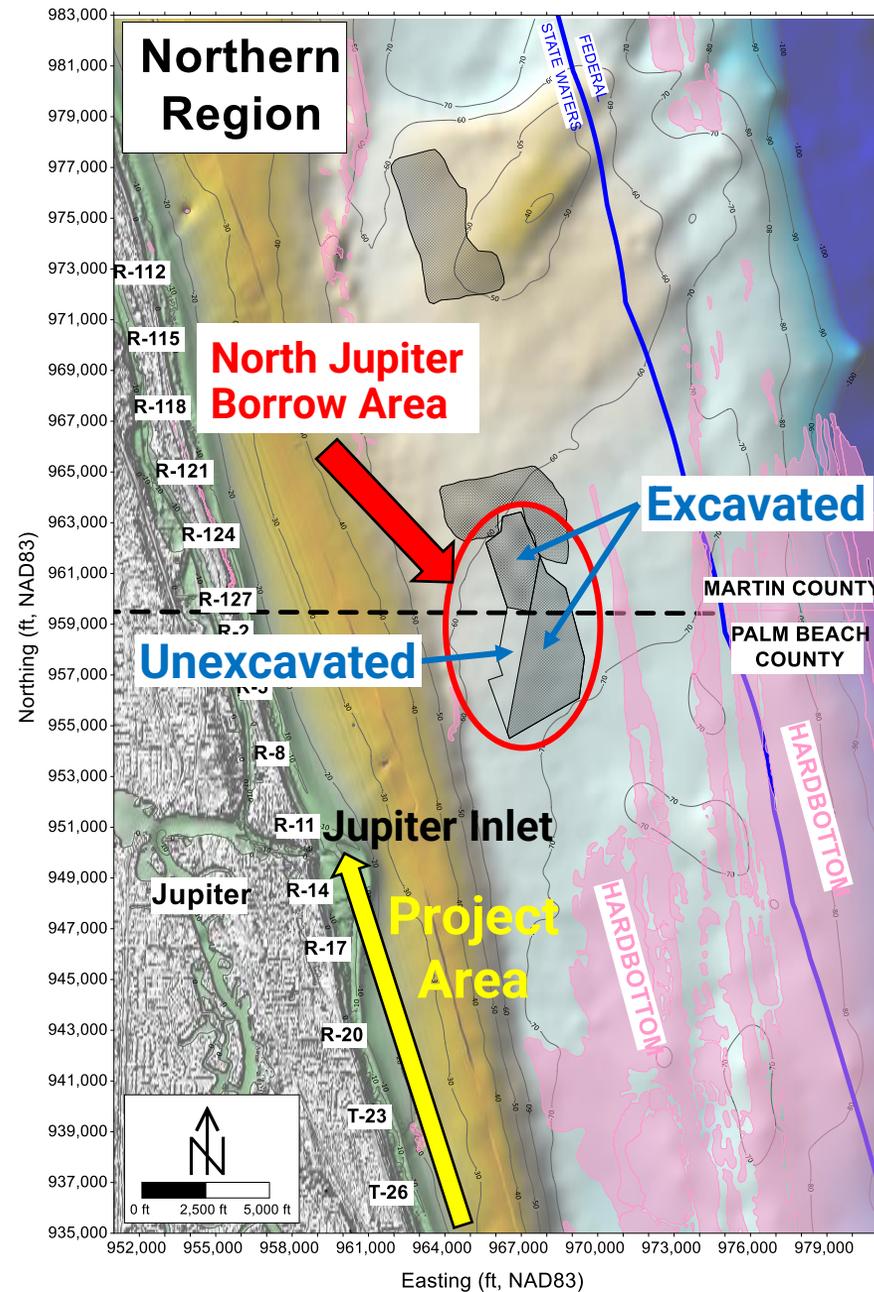
NCCSPP Sand Search Preliminary Study Objectives

- ◆ Identify 5 Mcy of beach compatible sand
- ◆ Evaluate remaining material in North Jupiter Borrow Area (currently permitted)
- ◆ Evaluate other existing borrow areas in the region and their potential expansions
- ◆ Identify areas of interest

Current Borrow Area

North Jupiter Borrow Area

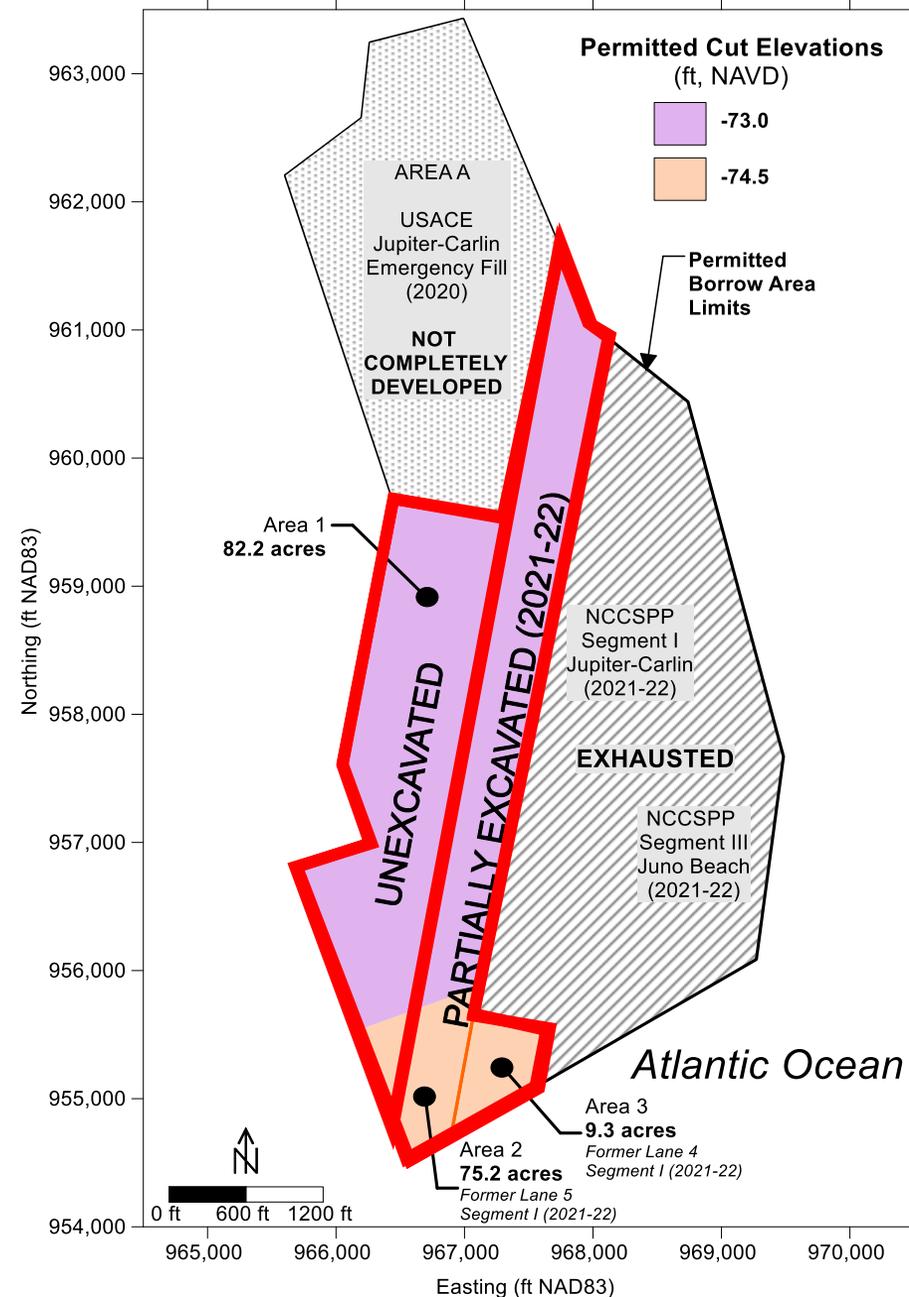
- ◆ Located 1.6 nmi NE of Jupiter Inlet
- ◆ Currently the only borrow area permitted for NCCSPP renourishments
- ◆ Used for the 3 NCCSPP renourishment projects since 2018



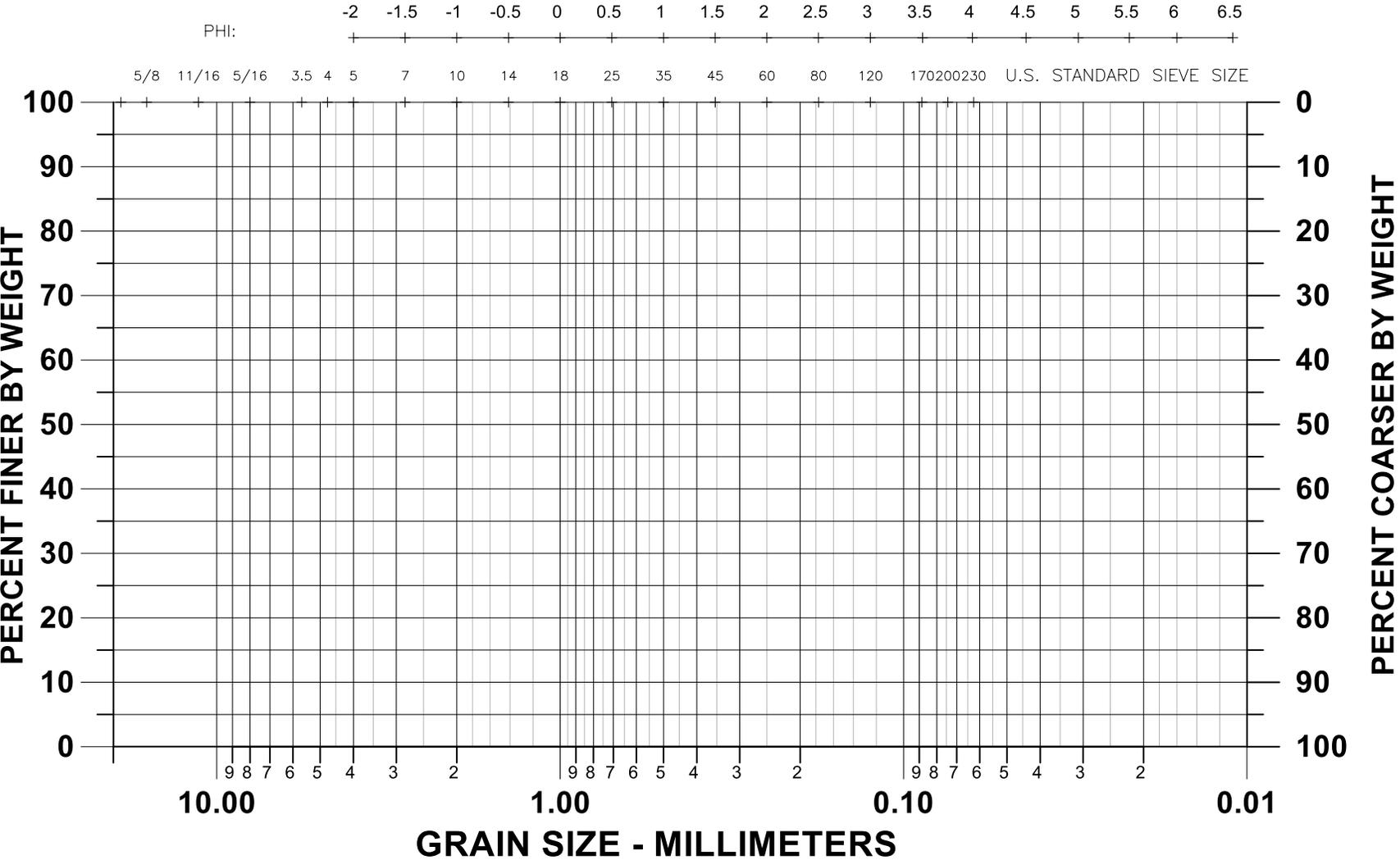
Preliminary Study Current Borrow Area

North Jupiter Borrow Area

- ◆ Area 1 completely **unexcavated**
- ◆ Areas 2 and 3 **partially excavated** in 2021-22
- ◆ Areas 1, 2, and 3 constitute 166.7 acres
- ◆ In total, **~1.9 million cubic yards** (cy) of material remain in Areas 1 through 3
- ◆ Quality of sediment lower than rest of borrow area due to significant **large shell**

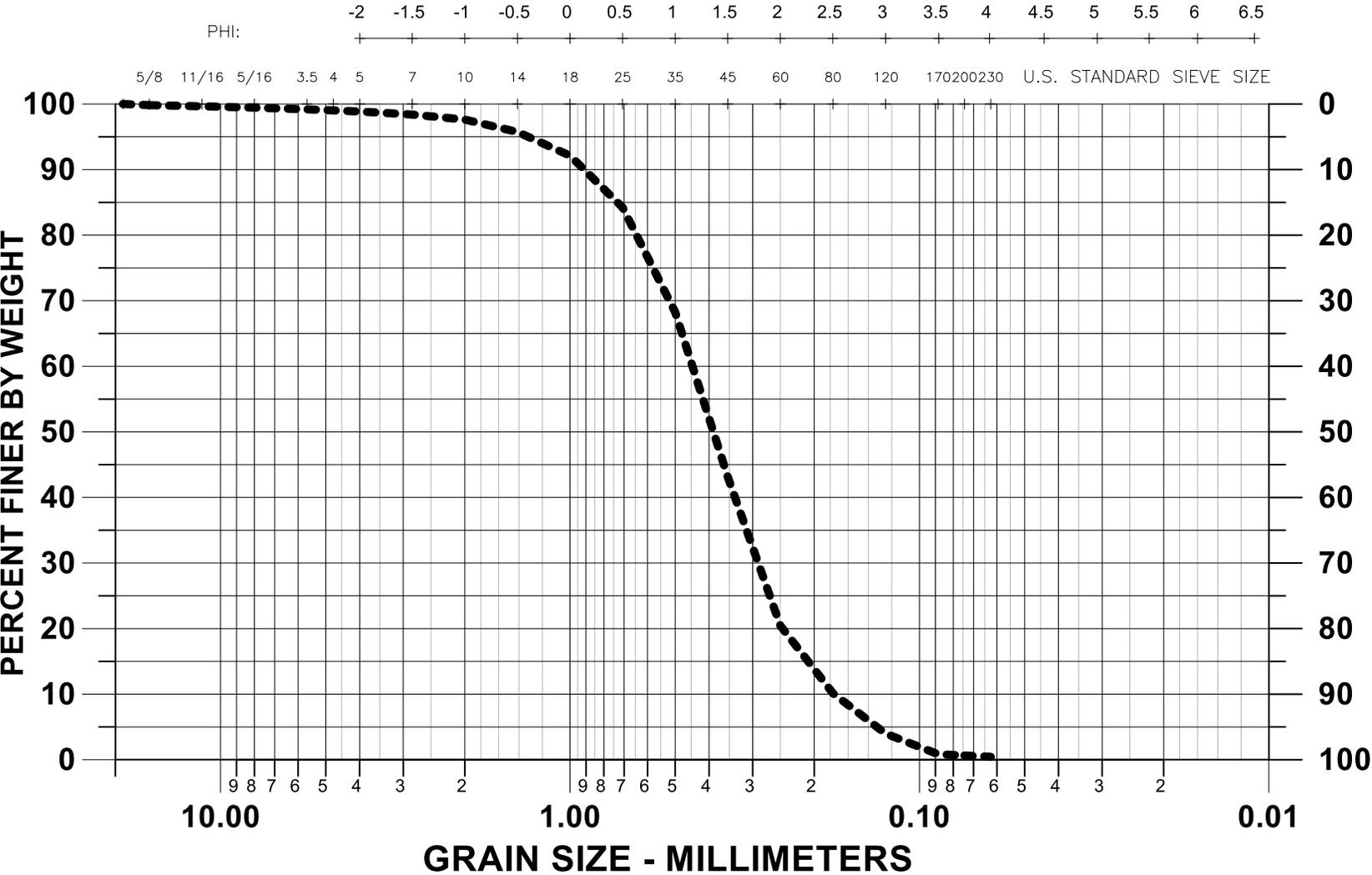


Grain Size Distributions



PEBBLE	GRAVEL	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE	SILT
		SAND					

Grain Size Distributions

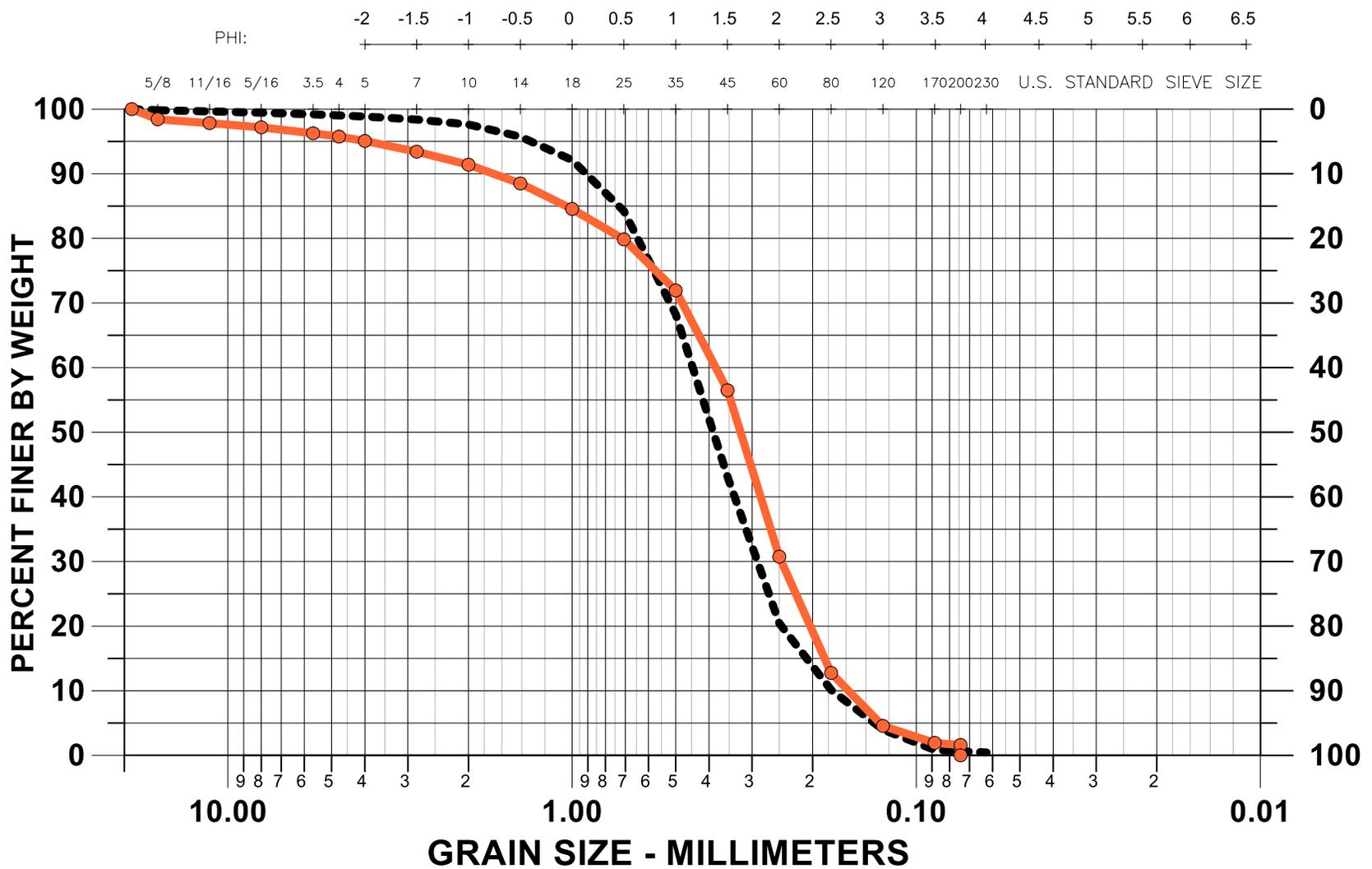


Native Berm

Mean Grain Size:
0.40 mm

PEBBLE	GRAVEL	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE	SILT
		SAND					

Grain Size Distributions

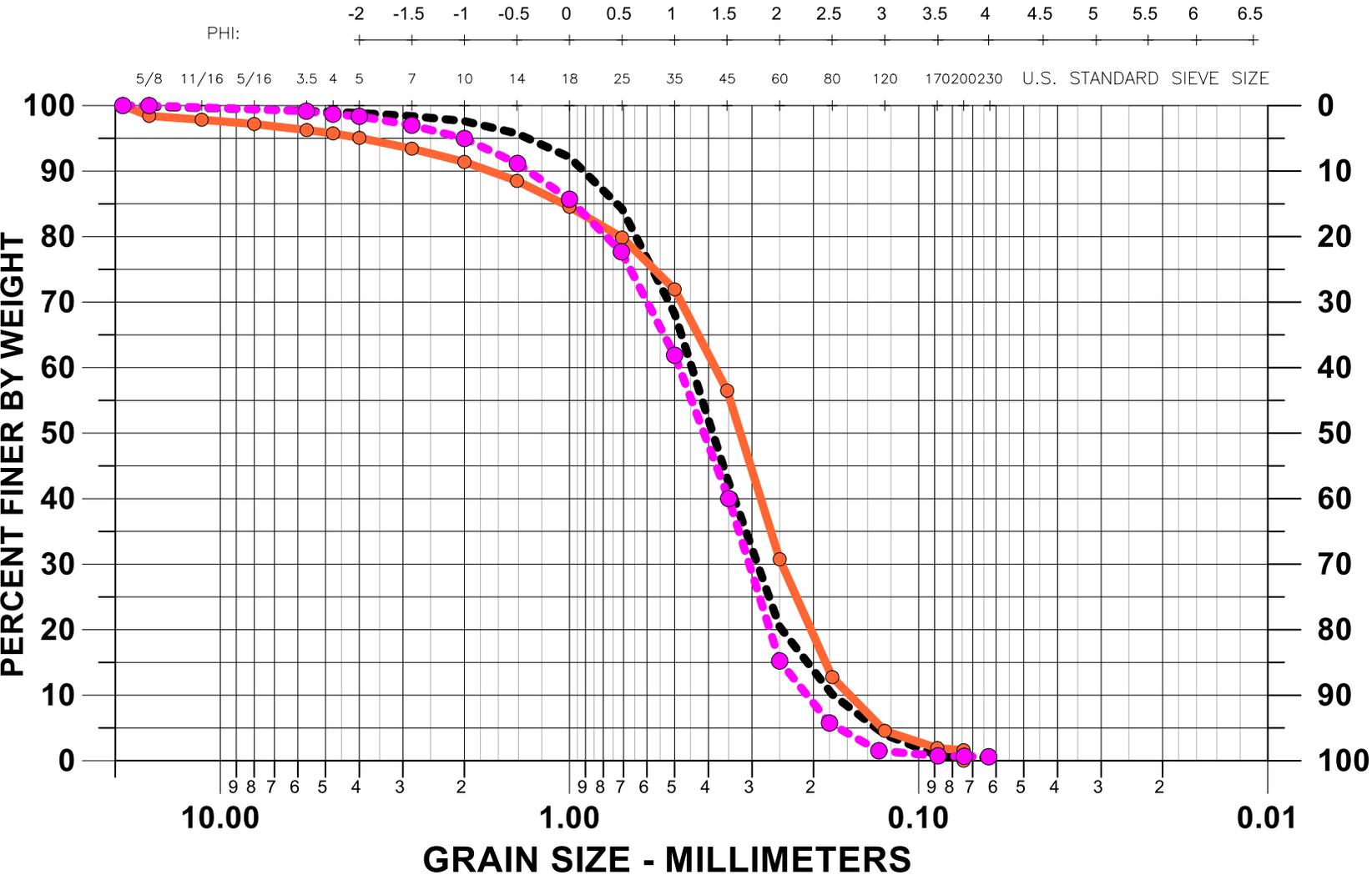


PEBBLE	GRAVEL	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE	SILT
		SAND					

Native Berm

North Jupiter
Borrow Area
Composite 2020-22

Grain Size Distributions



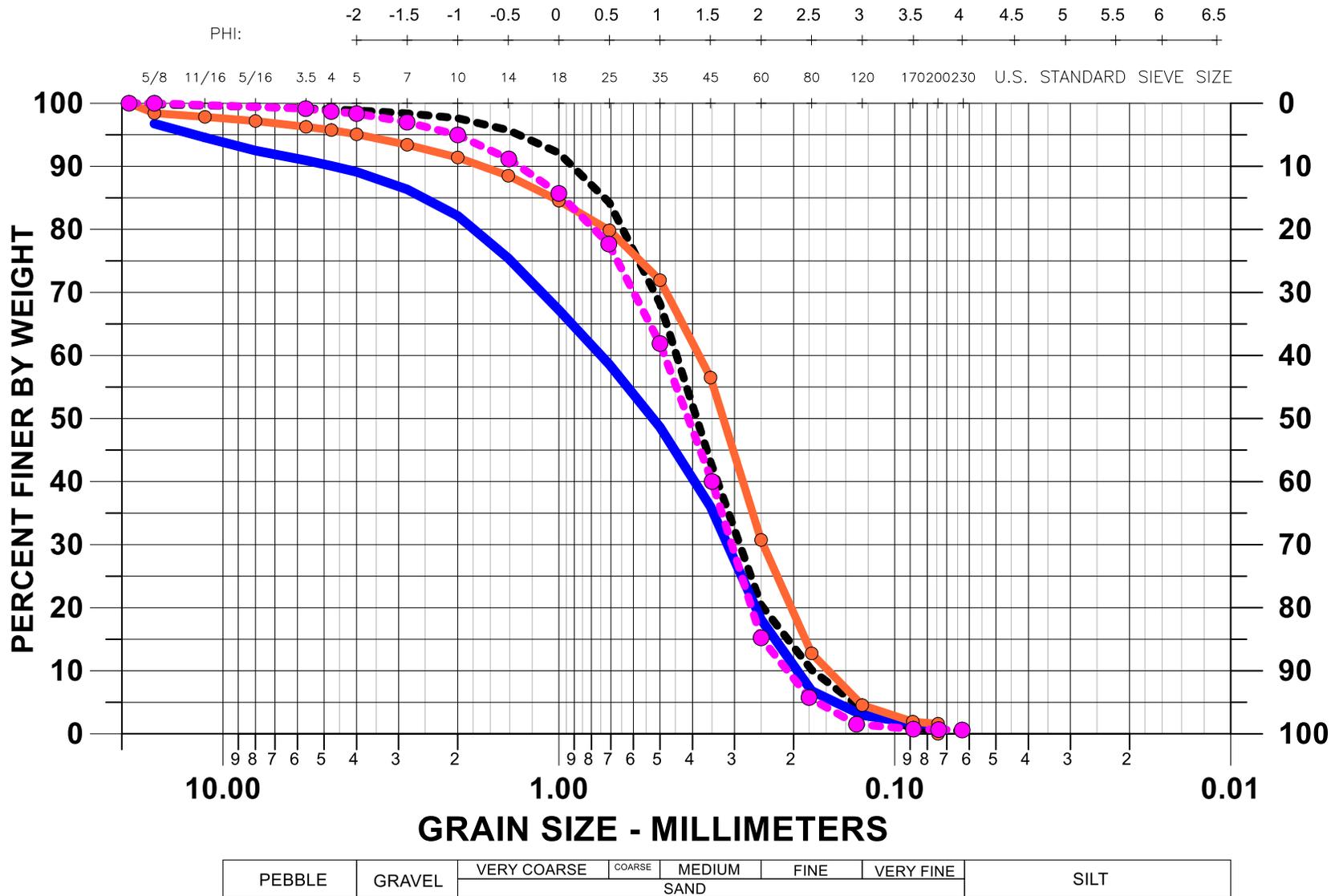
PEBBLE	GRAVEL	VERY COARSE	COARSE	MEDIUM	FINE	VERY FINE	SILT
		SAND					

Native Berm

North Jupiter
Borrow Area
Composite 2020-22

Jupiter 2021/22
Post-Con Berm
Composite (shell
screening used)

Grain Size Distributions



Native Berm

North Jupiter
Borrow Area
Composite 2020-22

Jupiter 2021/22
Post-Con Berm
Composite (shell
screening used)

North Jupiter
Borrow Area
Remaining Material
Composite (Areas
1-3)

2021-22 Segment 1 Shell Screening



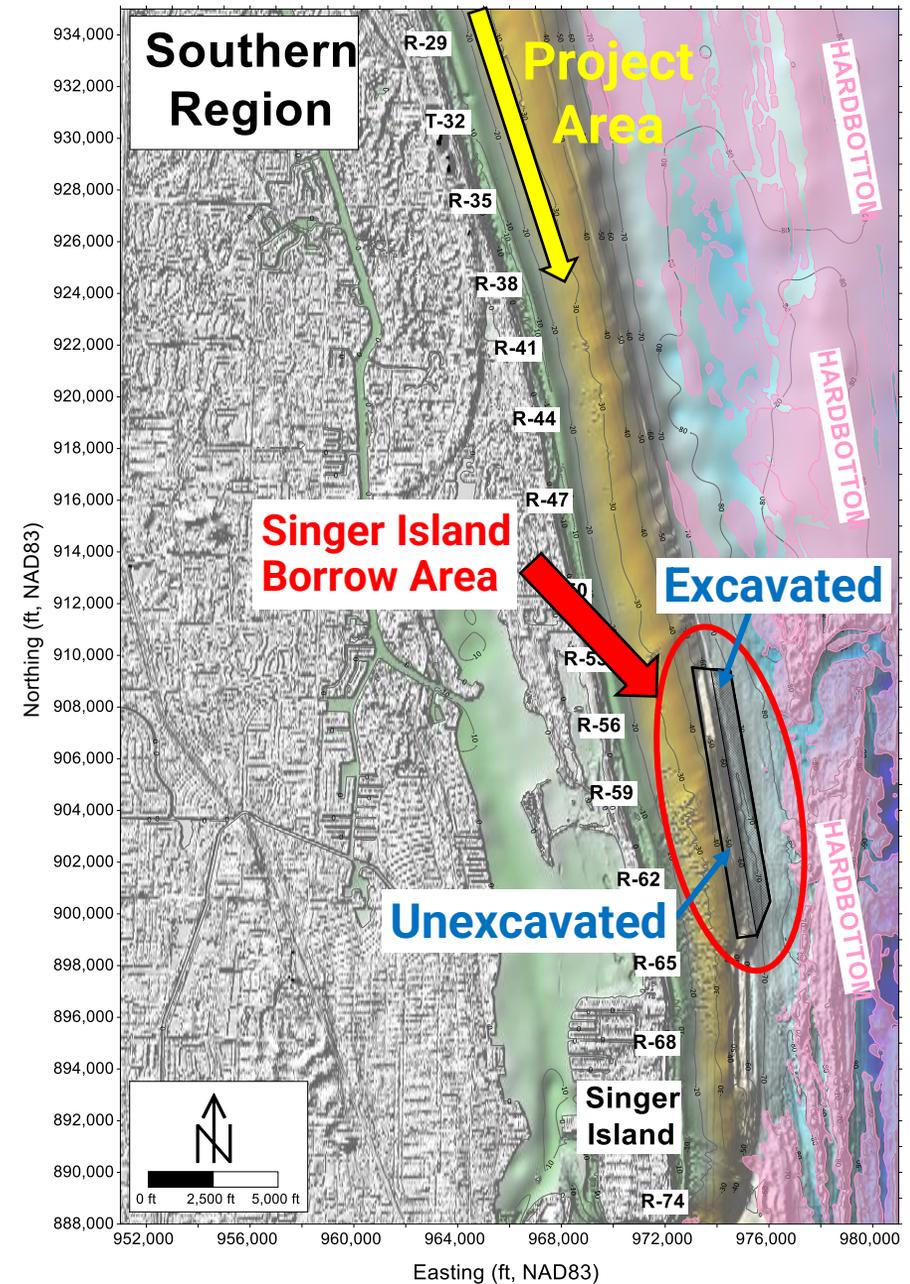
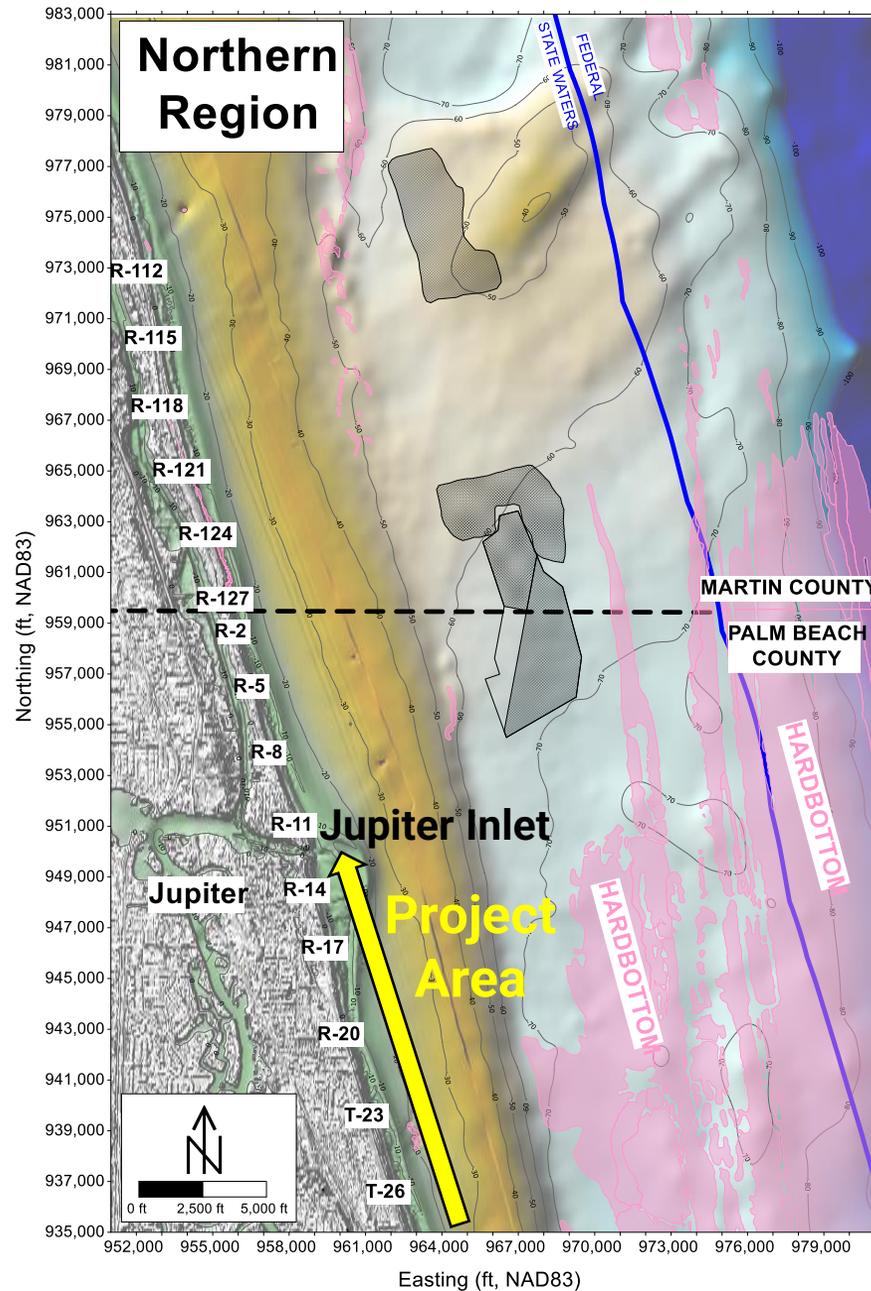
**2,660 cy Shell
Screened**

**410,000 cy pay volume
placed**

Previous Borrow Areas

Singer Island Borrow Area

- ◆ Located 7-9 nautical miles south of Jupiter Inlet
- ◆ Developed and partially dredged for 2010 and 2014 renourishments
- ◆ Eastern half has been excavated, western half has not



Sand Search Previous Borrow Areas

Singer Island Borrow Area

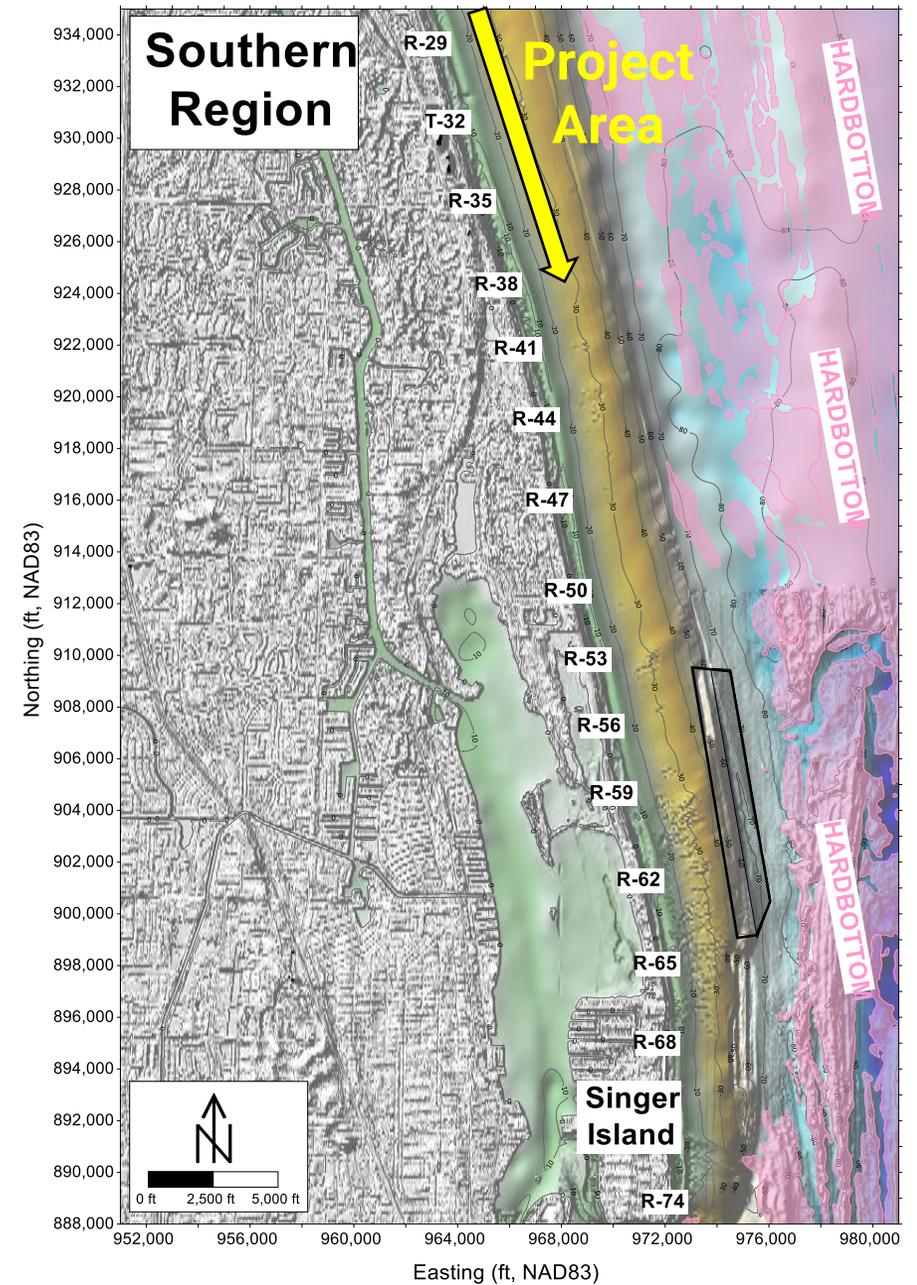
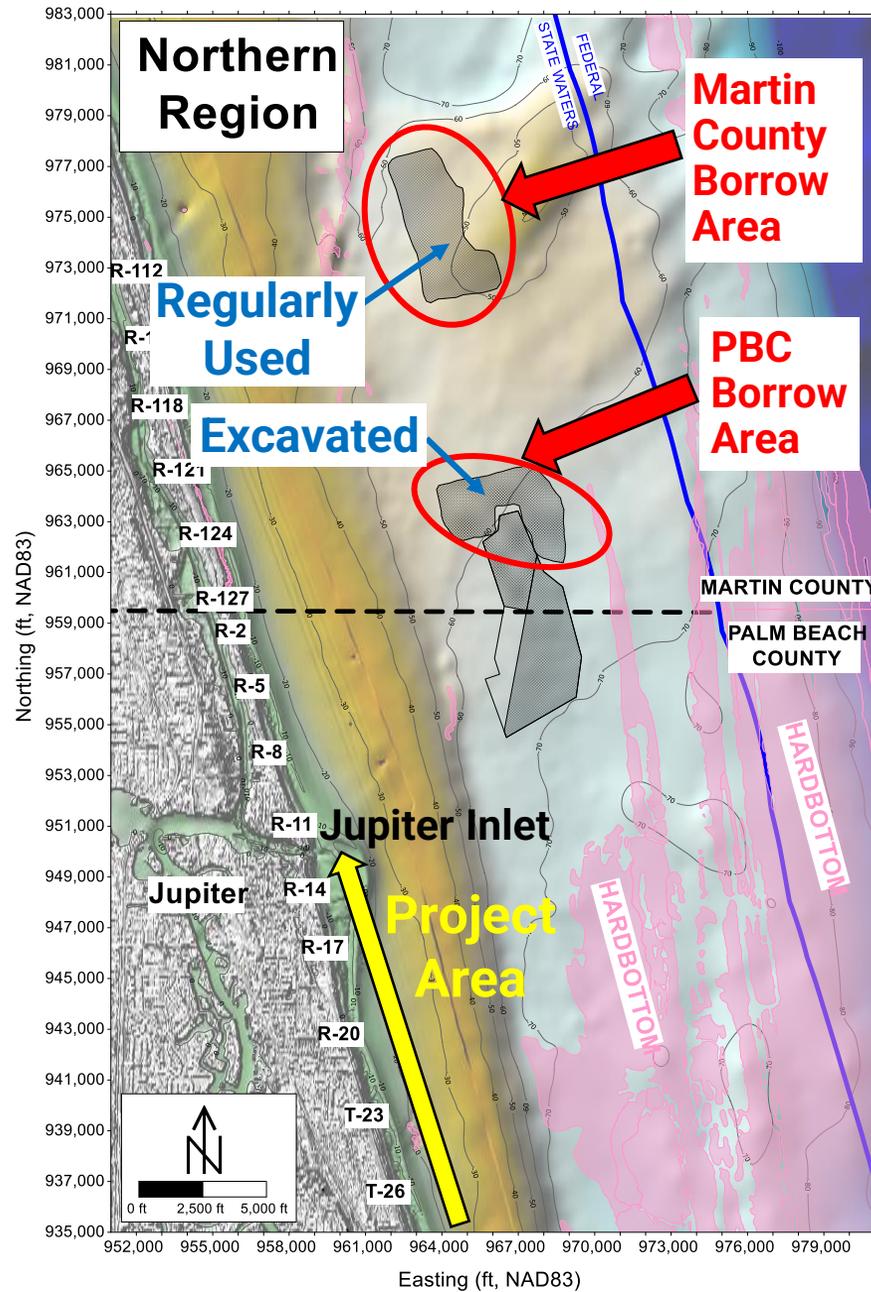
- ◆ Singer Island Western Half
 - Mean grain size: 0.28 mm
 - Overfill ratio would be high (target ~0.40 mm)
 - Up to 2.3 Mcy based on preliminary results
- ◆ Westward expansion of Singer Island Borrow Area
 - Mean grain size: 0.20 mm
 - Sand too fine for NCCSPP beach placement

SI04-05



Previous Borrow Areas

- ◆ Martin County Borrow Area regularly used, by others
- ◆ Old Palm Beach County borrow area fully excavated

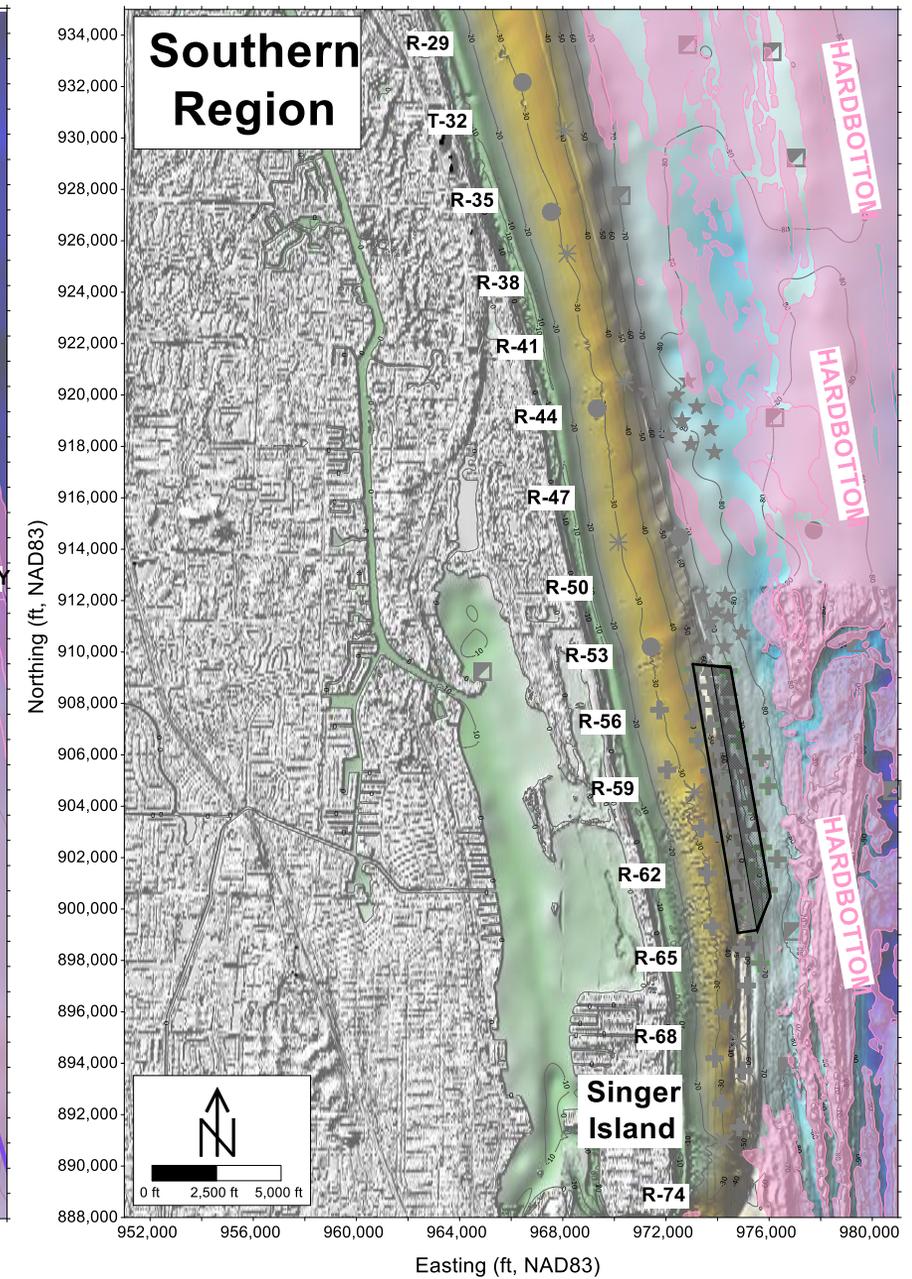
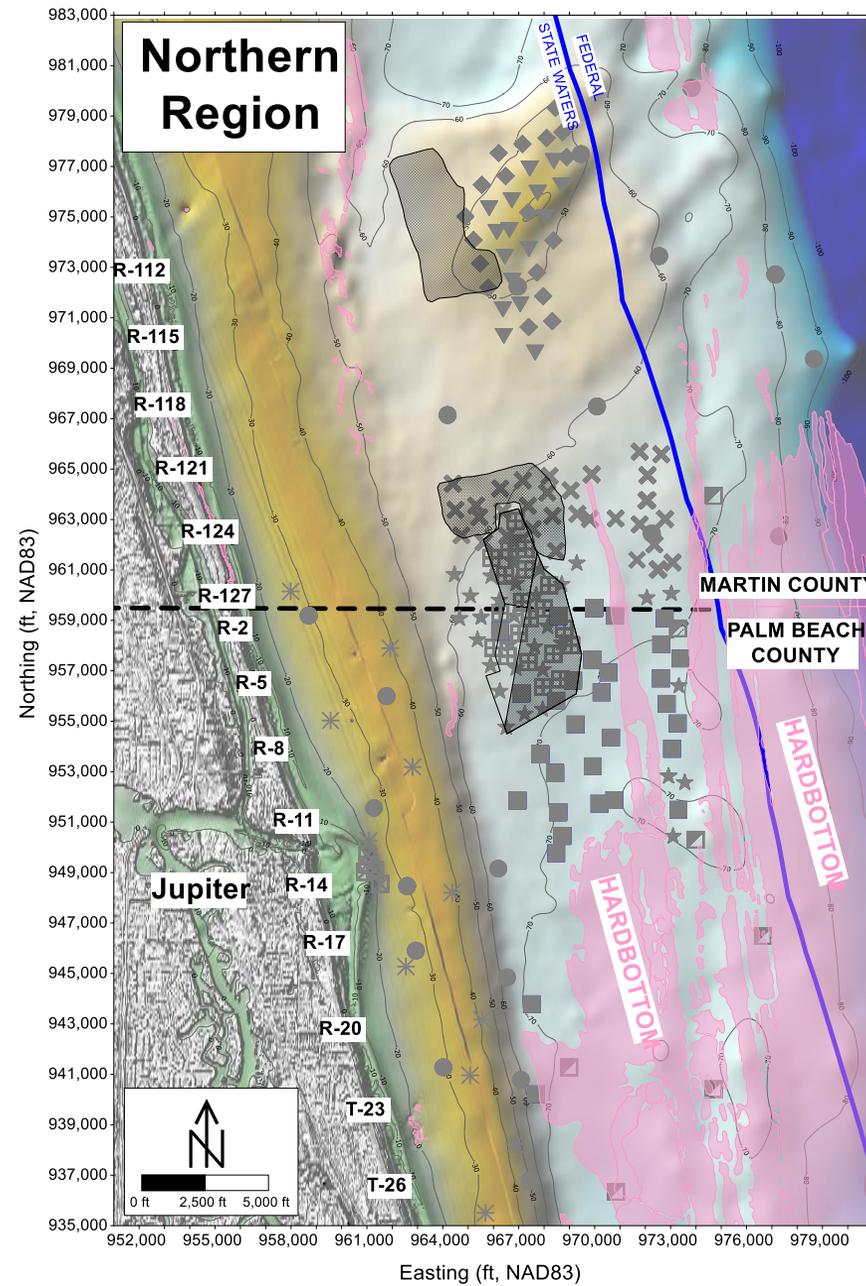


NCCSPP Sand Search Preliminary Study Summary

- ◆ Limited, likely shelly material remains in North Jupiter Borrow Area
- ◆ Singer Island western half may be suitable but will underperform without overfill

What else is out there?

Existing Data



NCCSPP Sediment QA/QC and Beach Compatibility

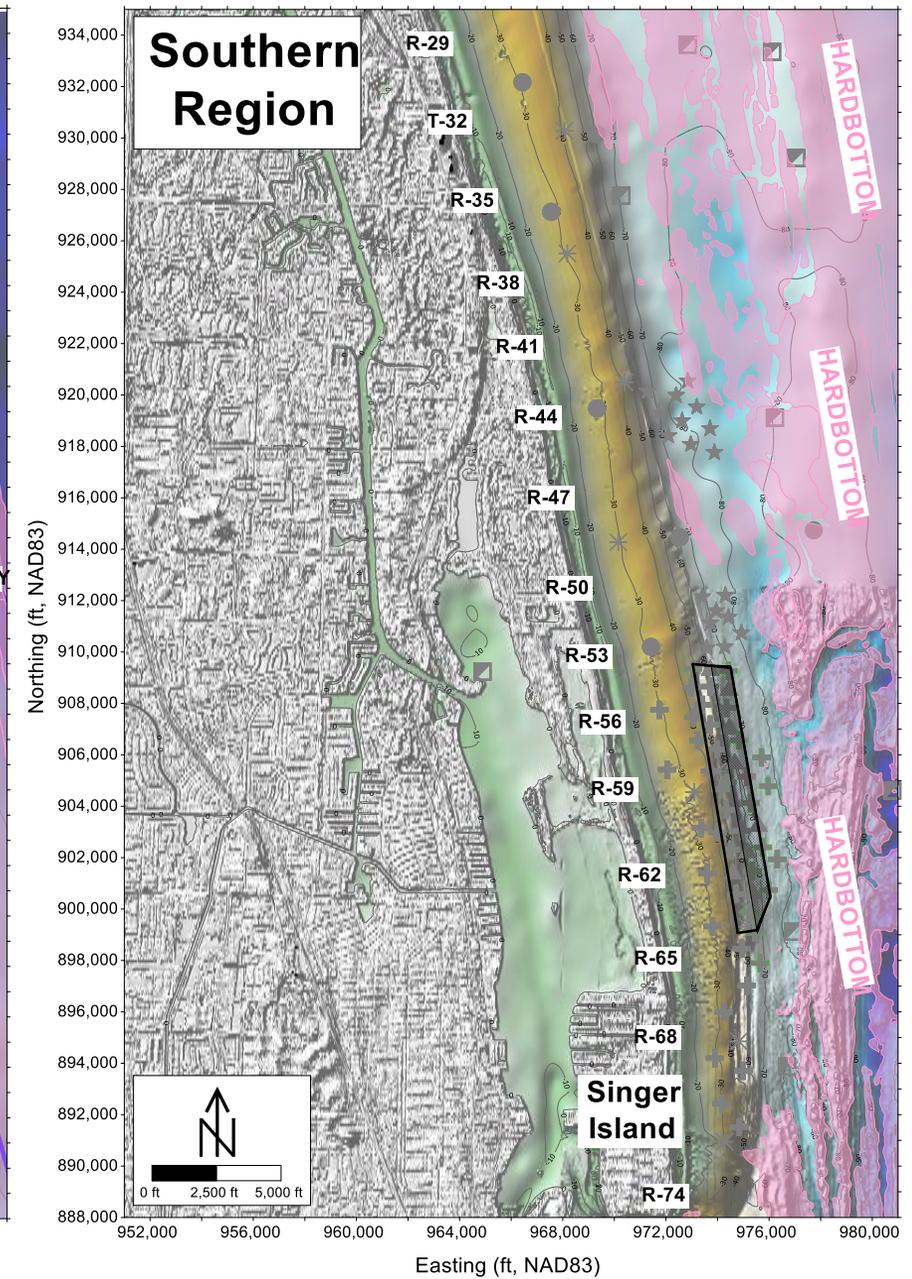
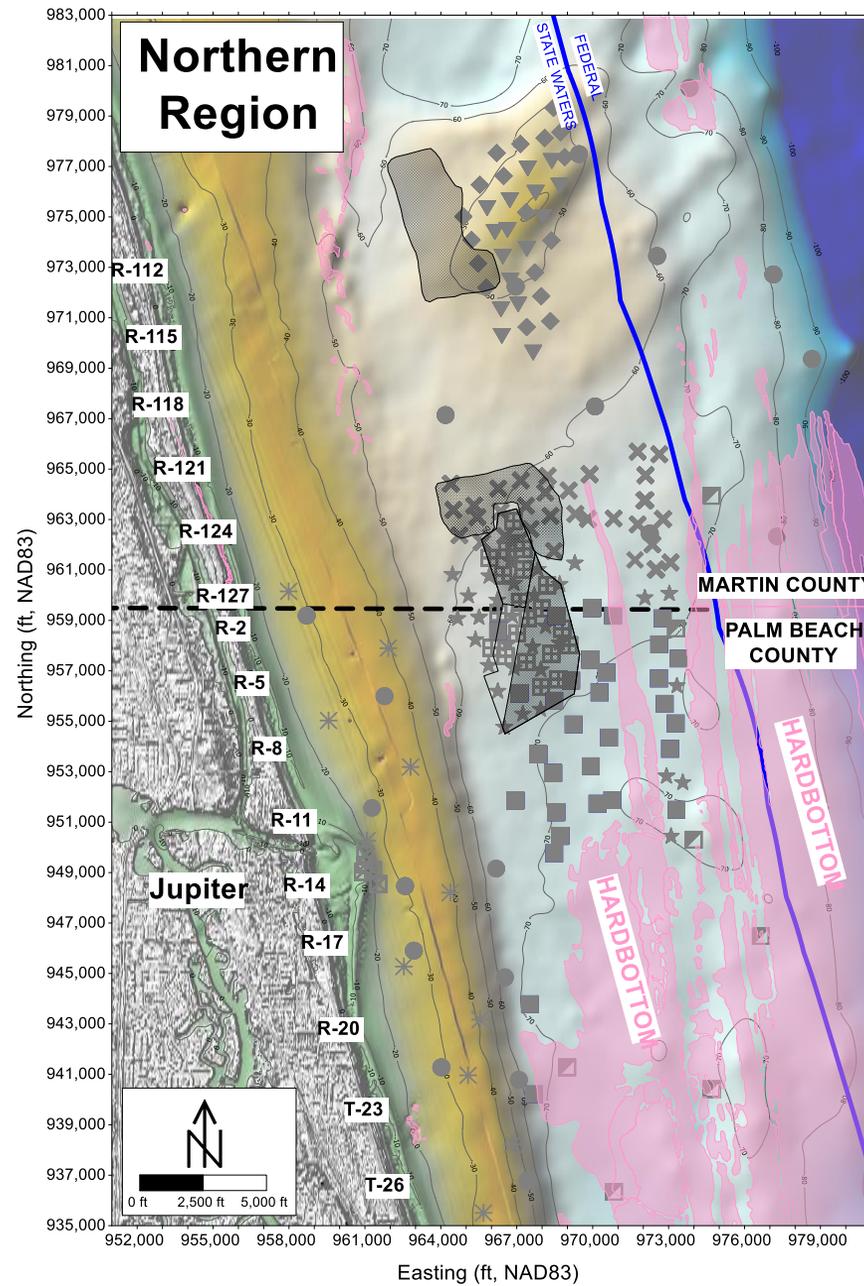
- ◆ Sediment compliance values:

Sediment Parameter	Parameter Definition	Compliance Value
Max. Silt Content	Passing #230 Sieve	2%
Max. Shell Content	Retained on #4 sieve	7%
Munsell Color Value	Moist value	5 or lighter (chroma= 1 or 2)

The beach fill material shall not contain debris, toxic material, other foreign matter, coarse gravel or rocks.

- ◆ Preferred mean grain size >0.20 mm and <0.50 mm
- ◆ Stay at least 1,000 ft from exposed hardbottom

Existing Data

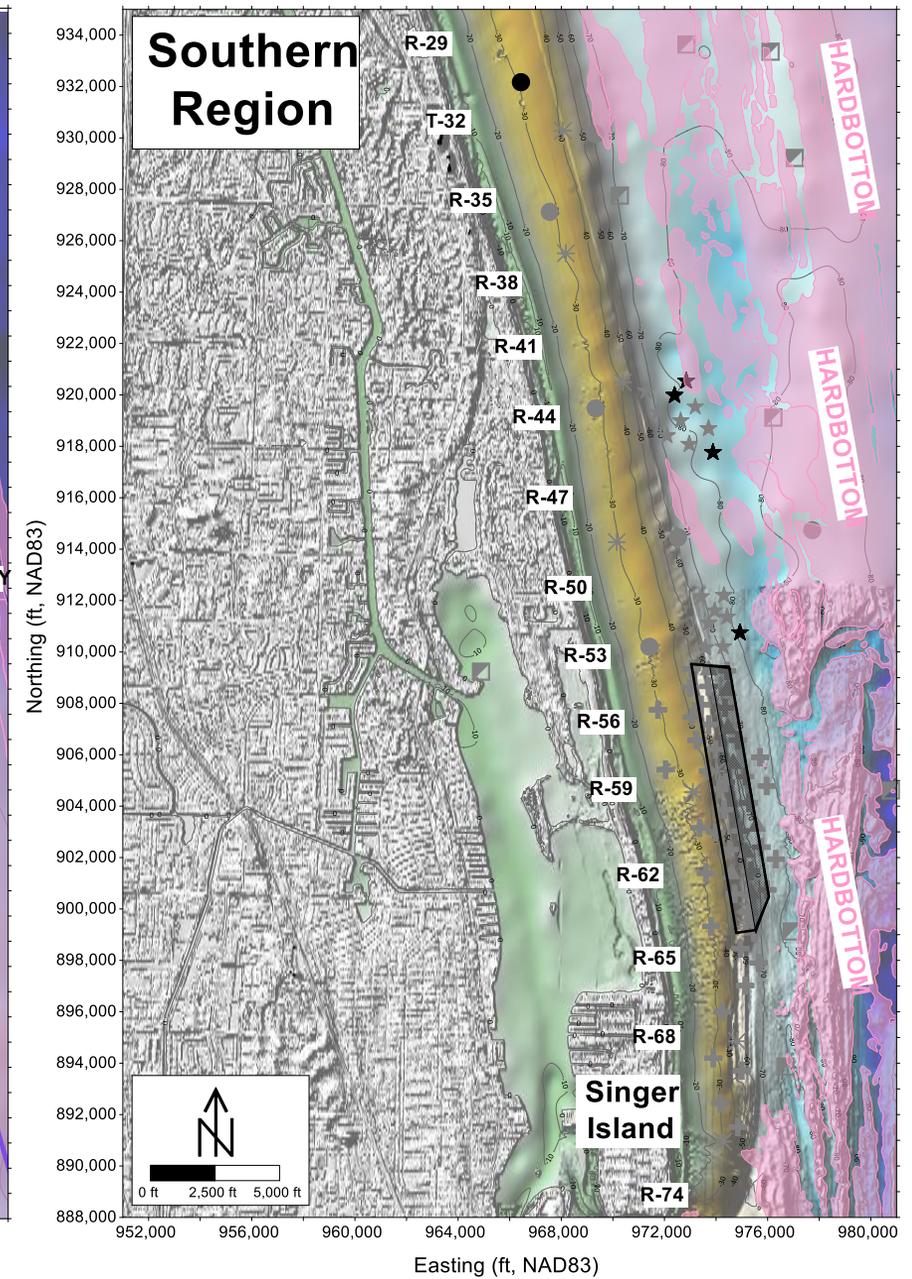
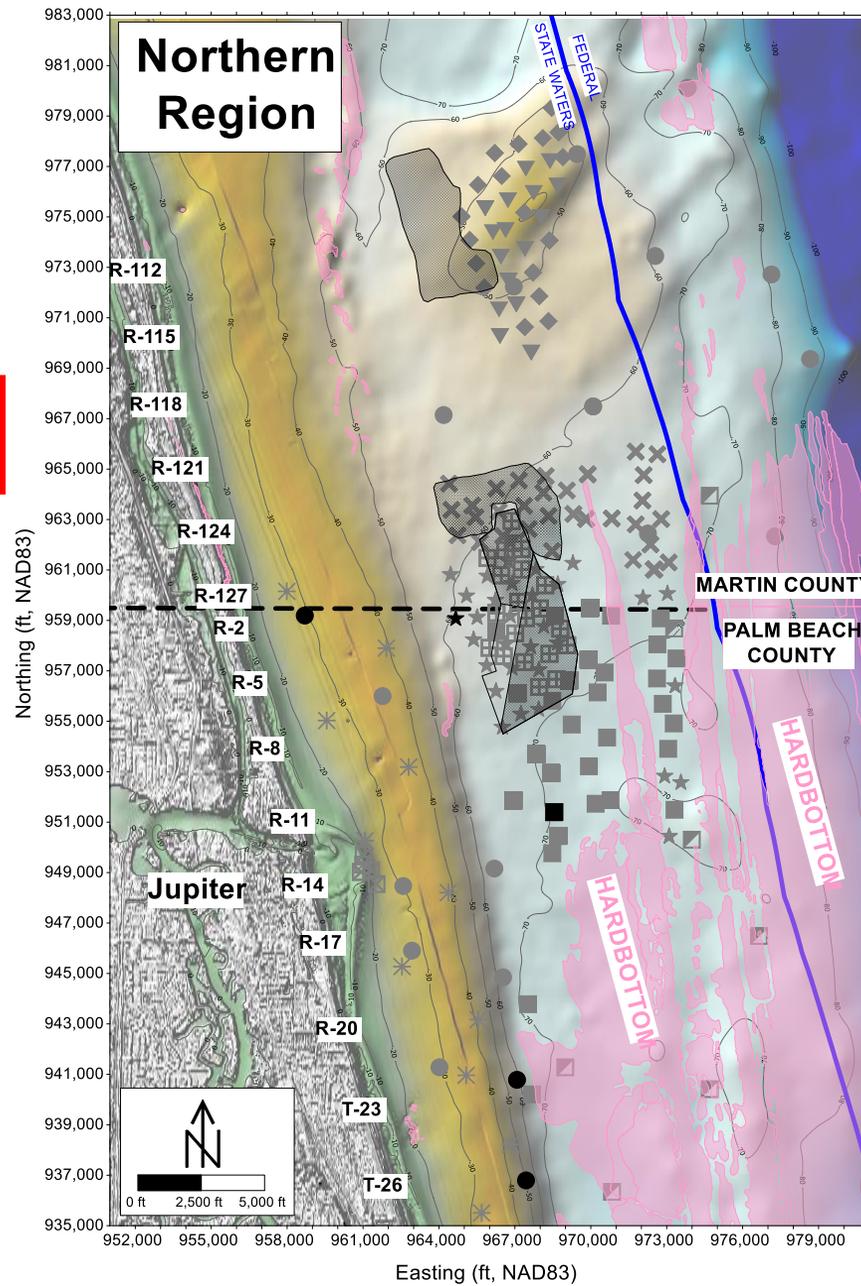


Existing Data

Multiple Issues
Disqualifying Factor
Above 5' Depth



Multiple GSD or Color Issues

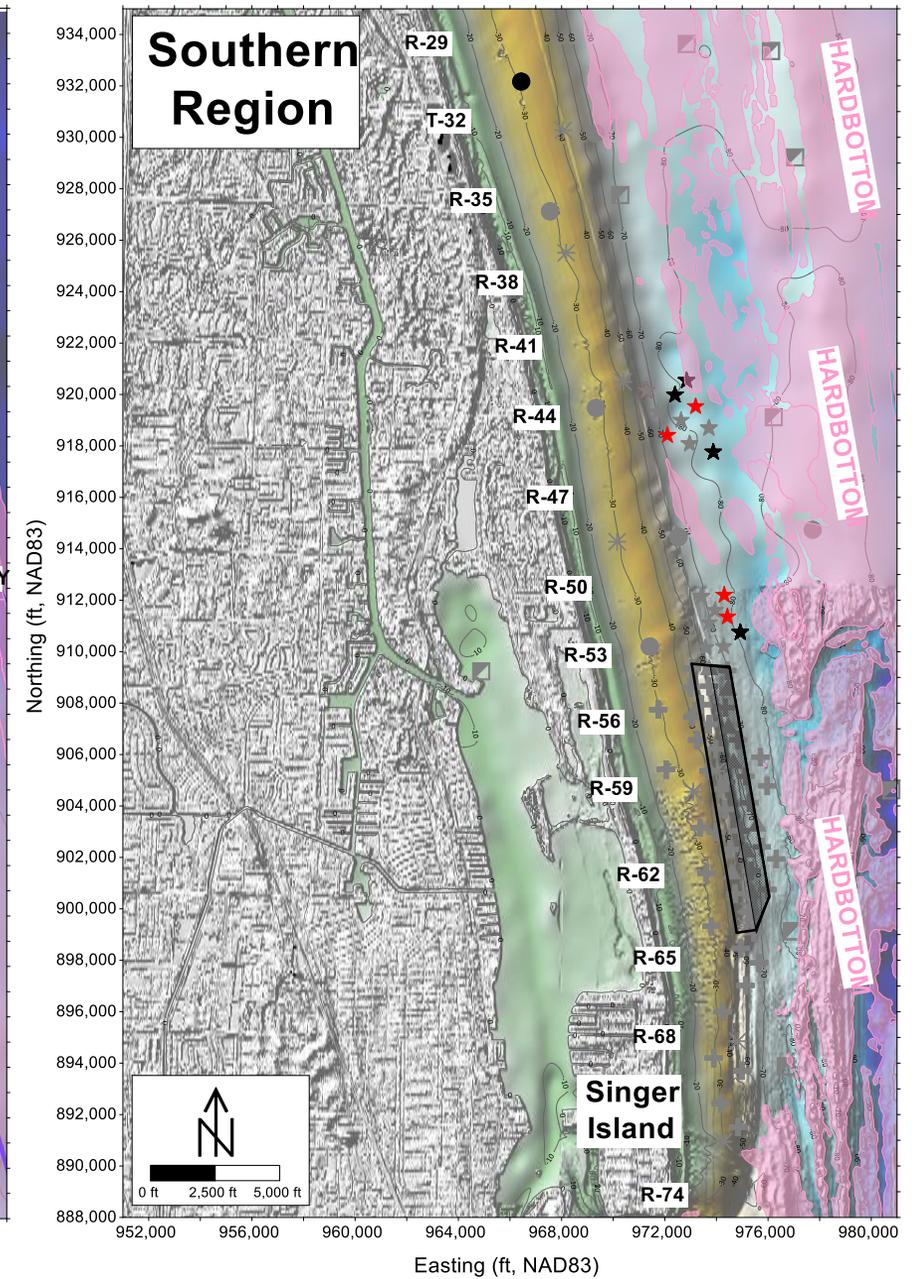
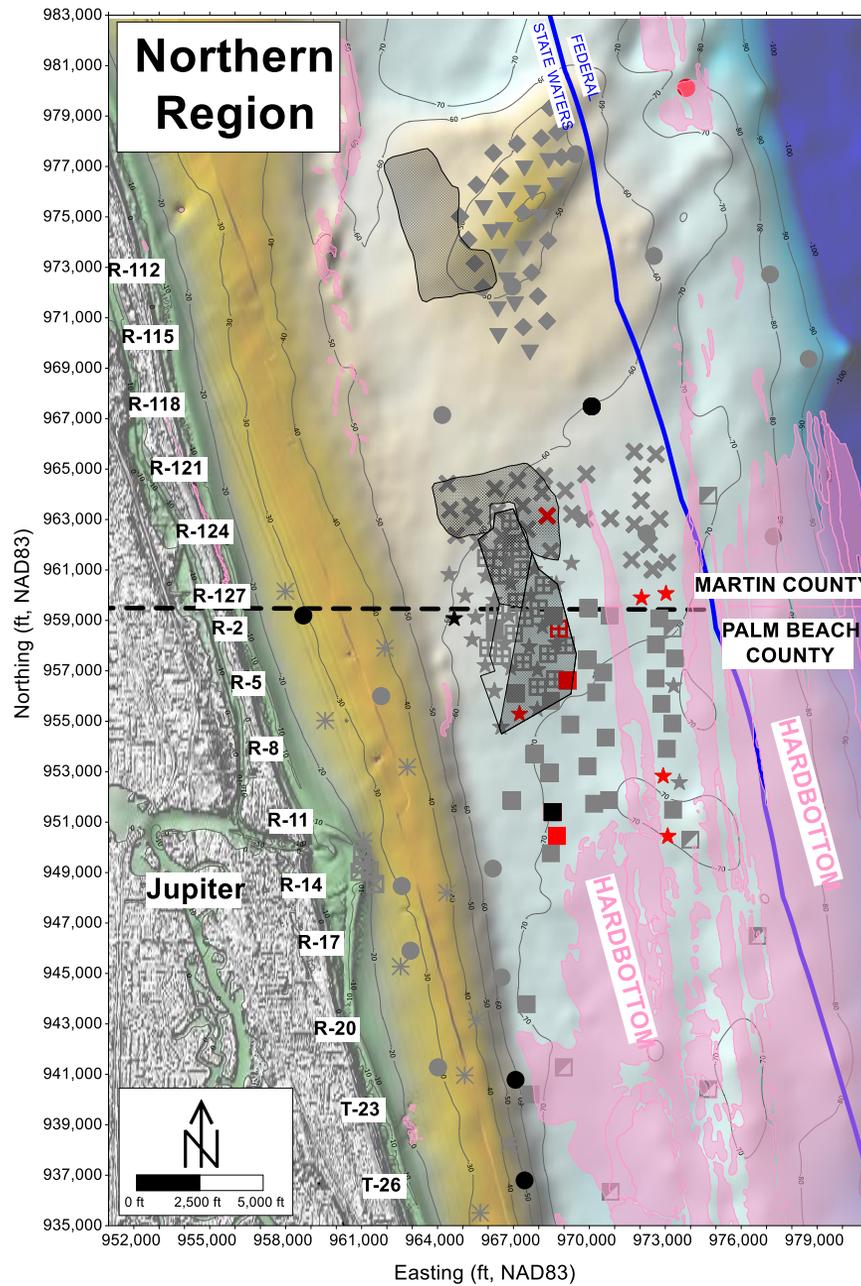


Existing Data

Clay/Silt Disqualifying Factor Above 5' Depth

 Multiple GSD or Color Issues

 % Passing on #200 or #230 >5%

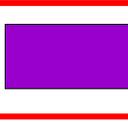


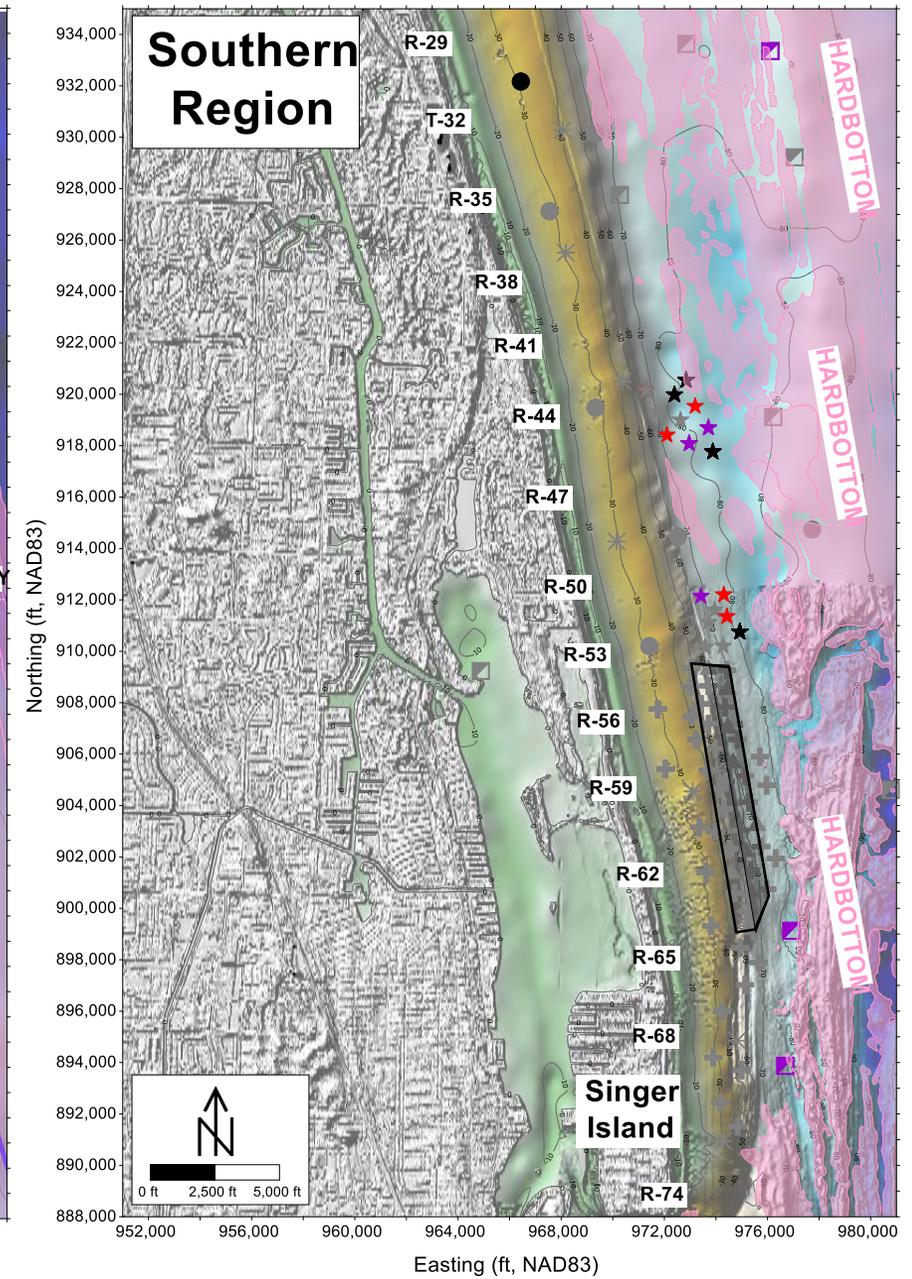
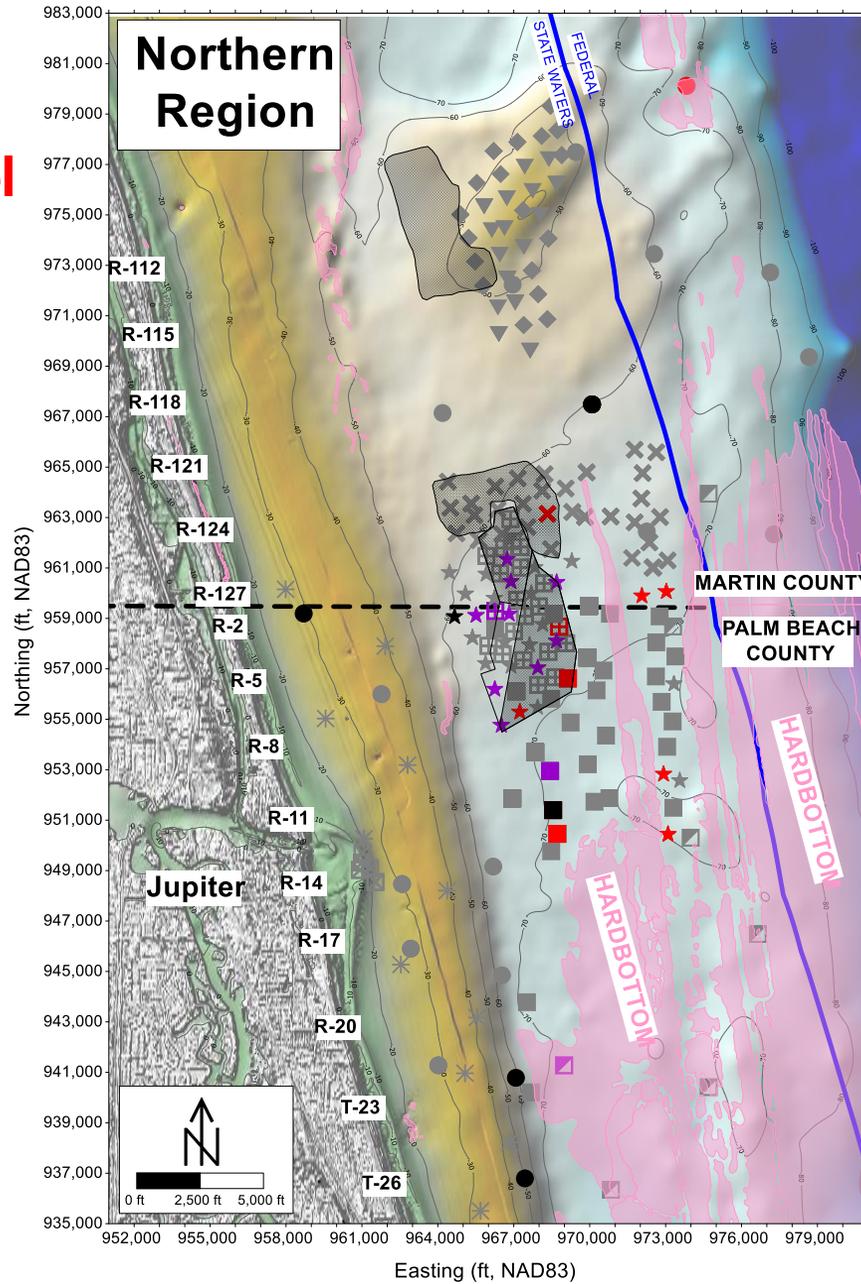
Existing Data

Large Shells/Gravel Disqualifying Factor Above 5' Depth

 Multiple GSD or Color Issues

 % Passing on #200 or #230 >5%

 % Retained on #4 >20%
or #5 >22%



Existing Data

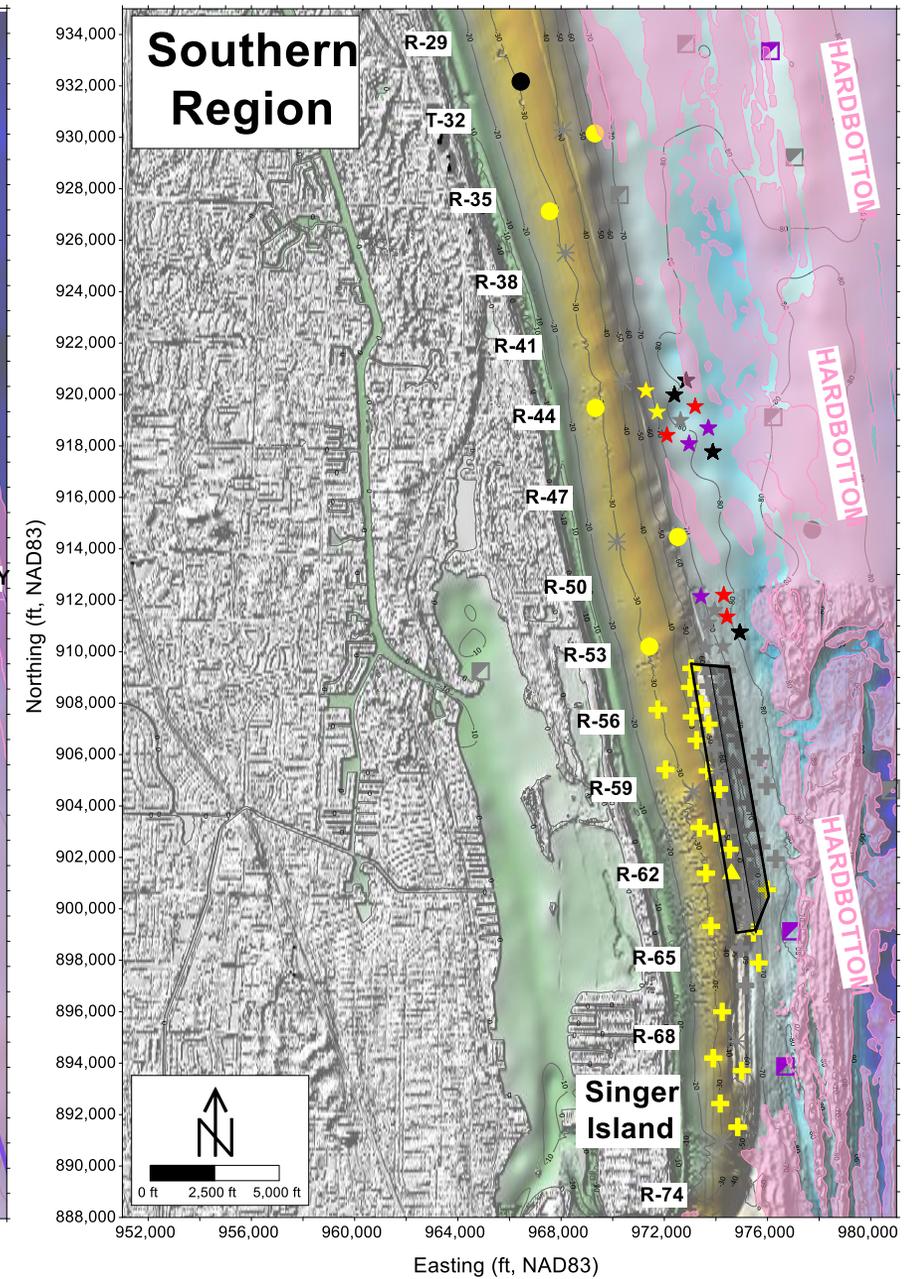
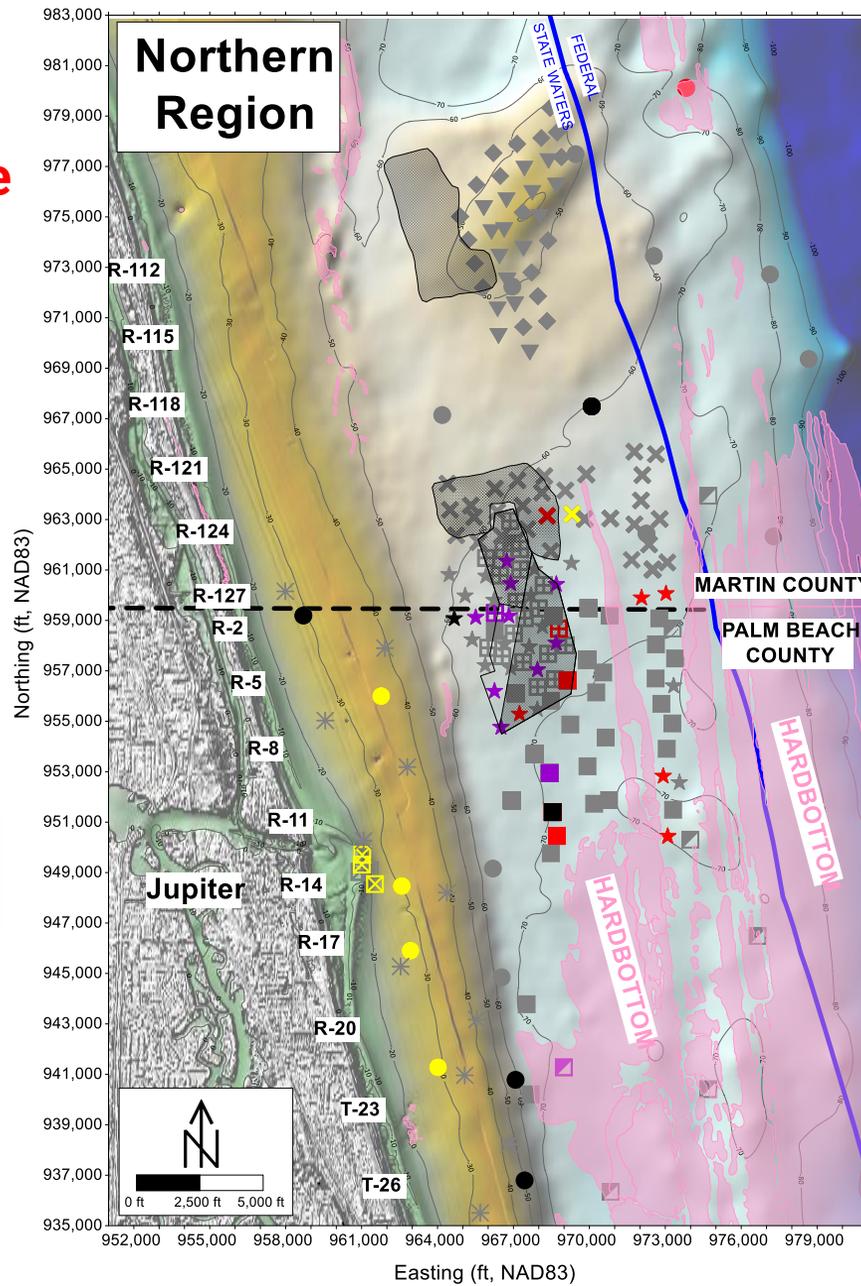
Mean Grain Size Disqualifying Factor Above 5' Depth

 Multiple GSD or Color Issues

 % Passing on #200 or #230 >5%

 % Retained on #4 >20%
or #5 >22%

 Mean Grain Size <0.2 mm



Existing Data

Disqualifying Factor Above 5' Depth

Color

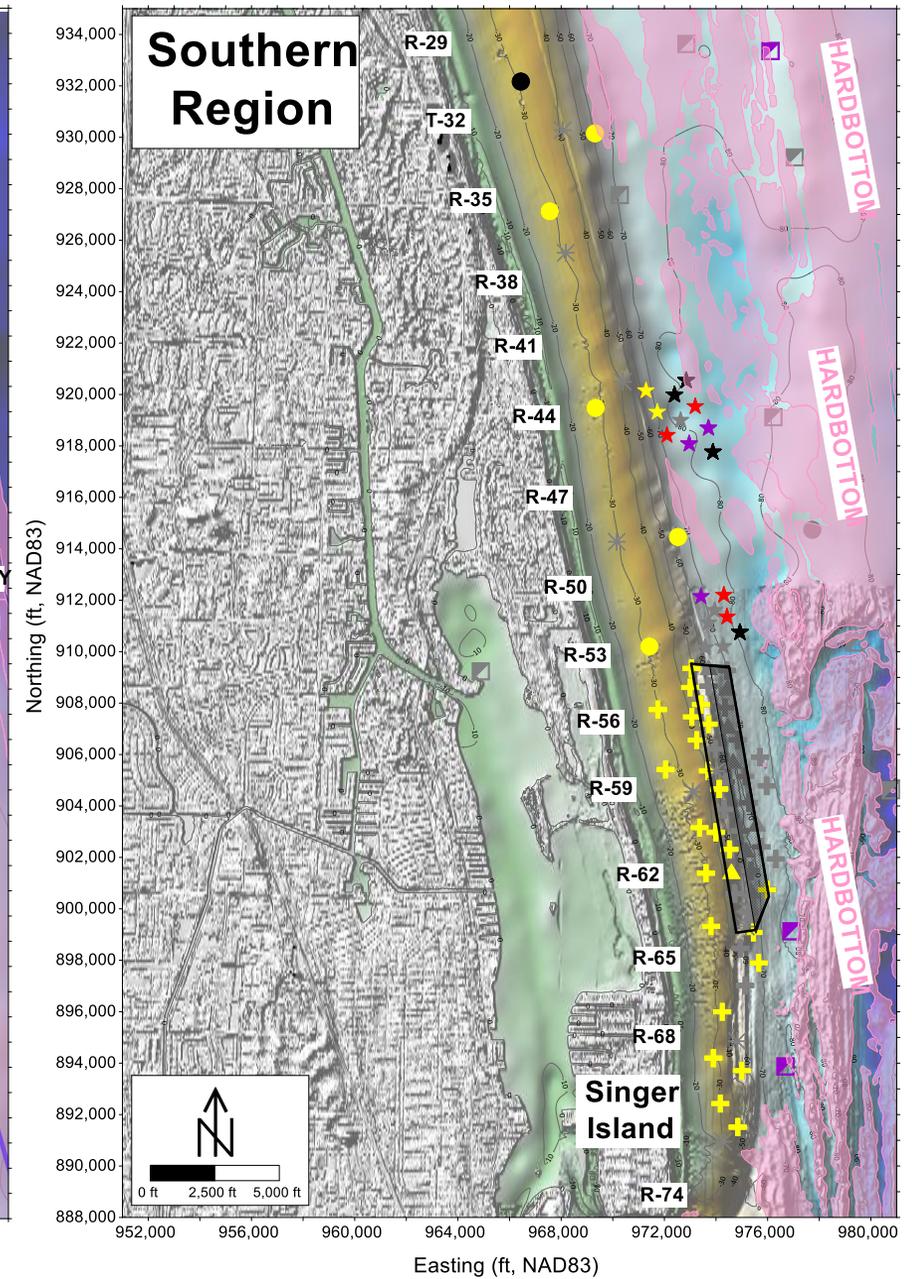
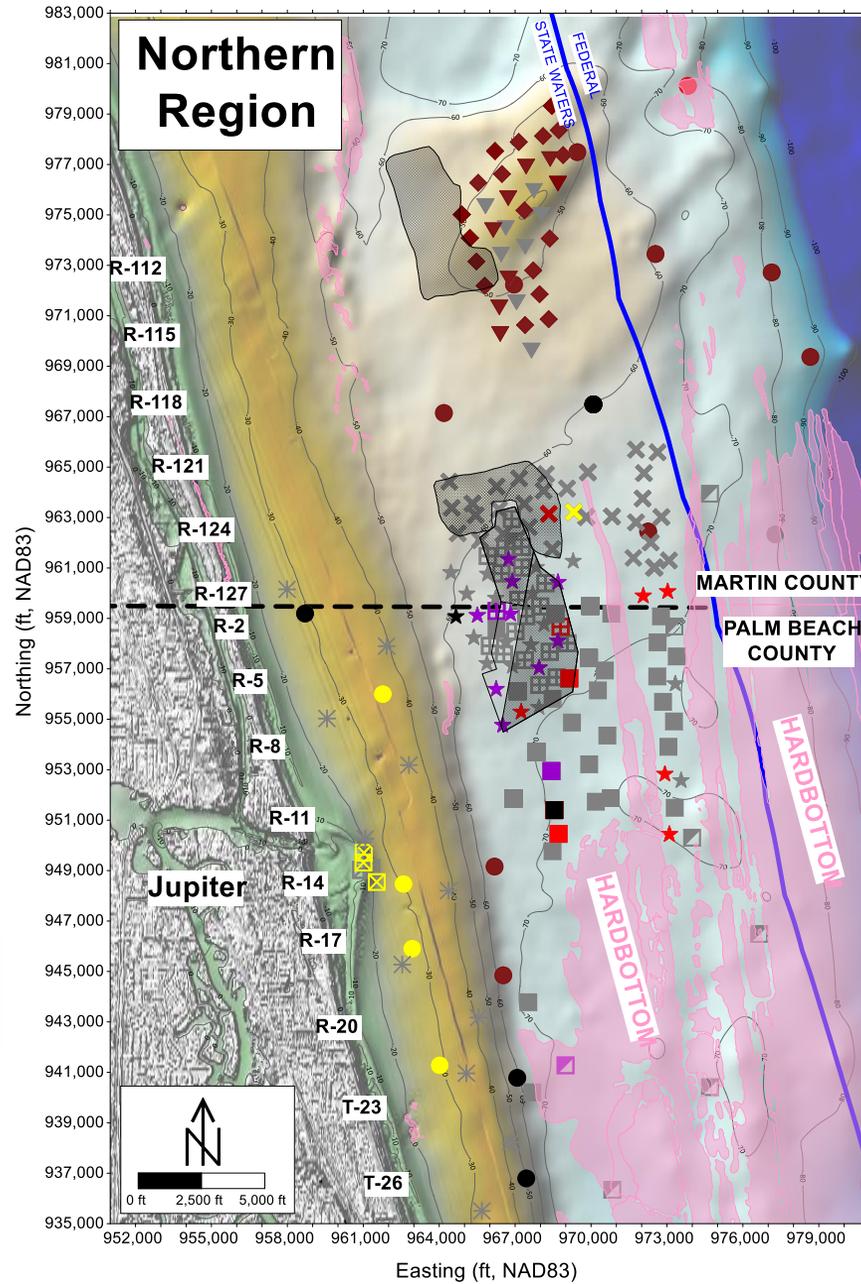
 Multiple GSD or Color Issues

 % Passing on #200 or #230 >5%

 % Retained on #4 >20% or #5 >22%

 Mean Grain Size <0.2 mm

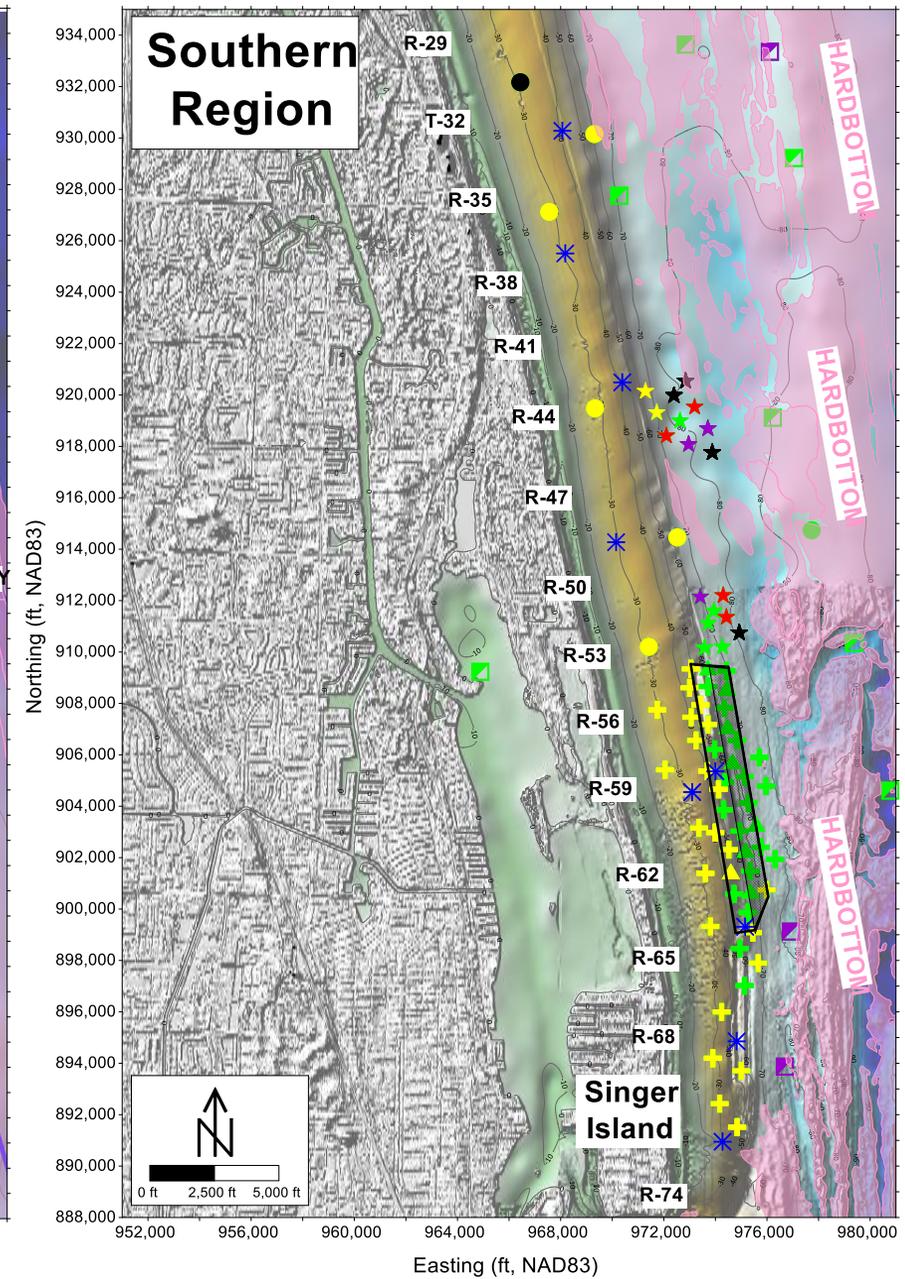
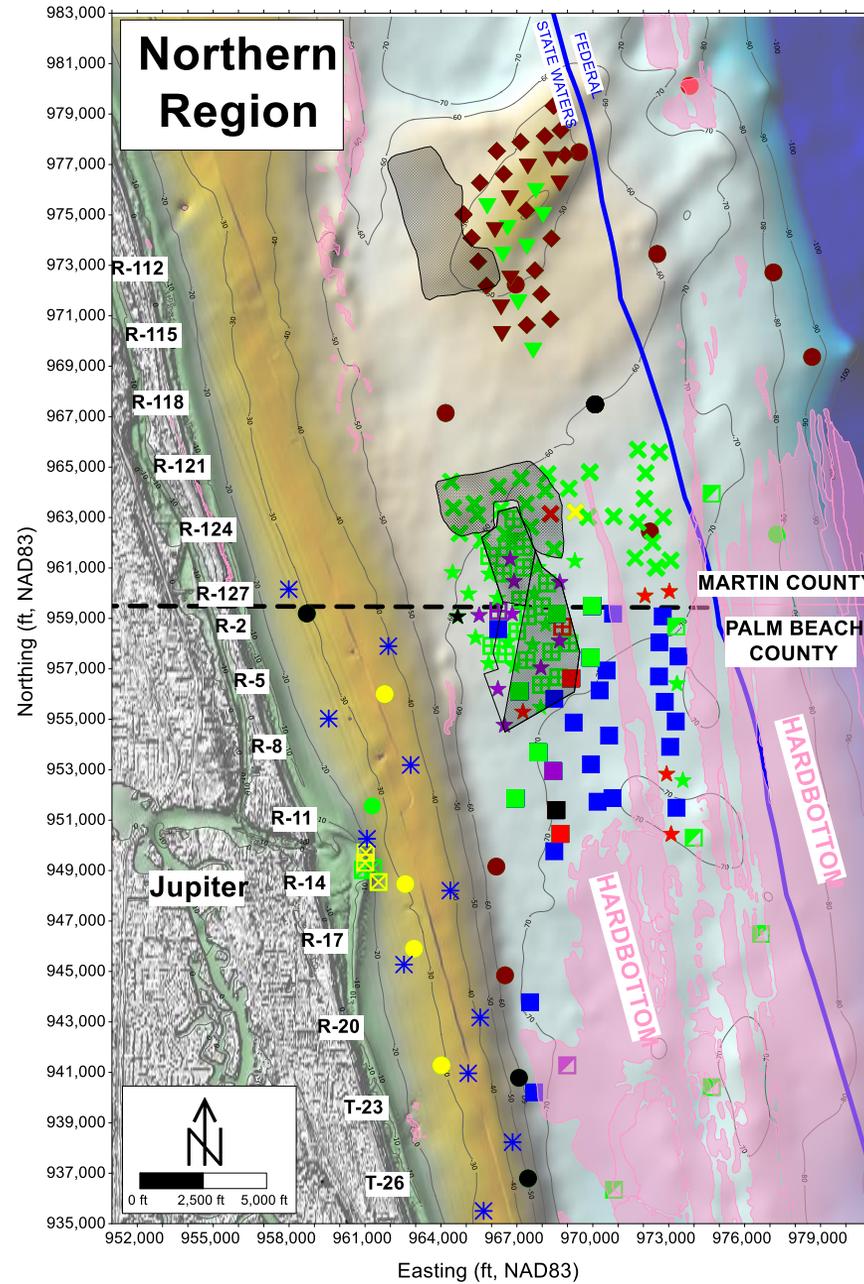
 Munsell Value <5 or Chroma >



Existing Data

Potentially Compatible Disqualifying Factor Above 5' Depth

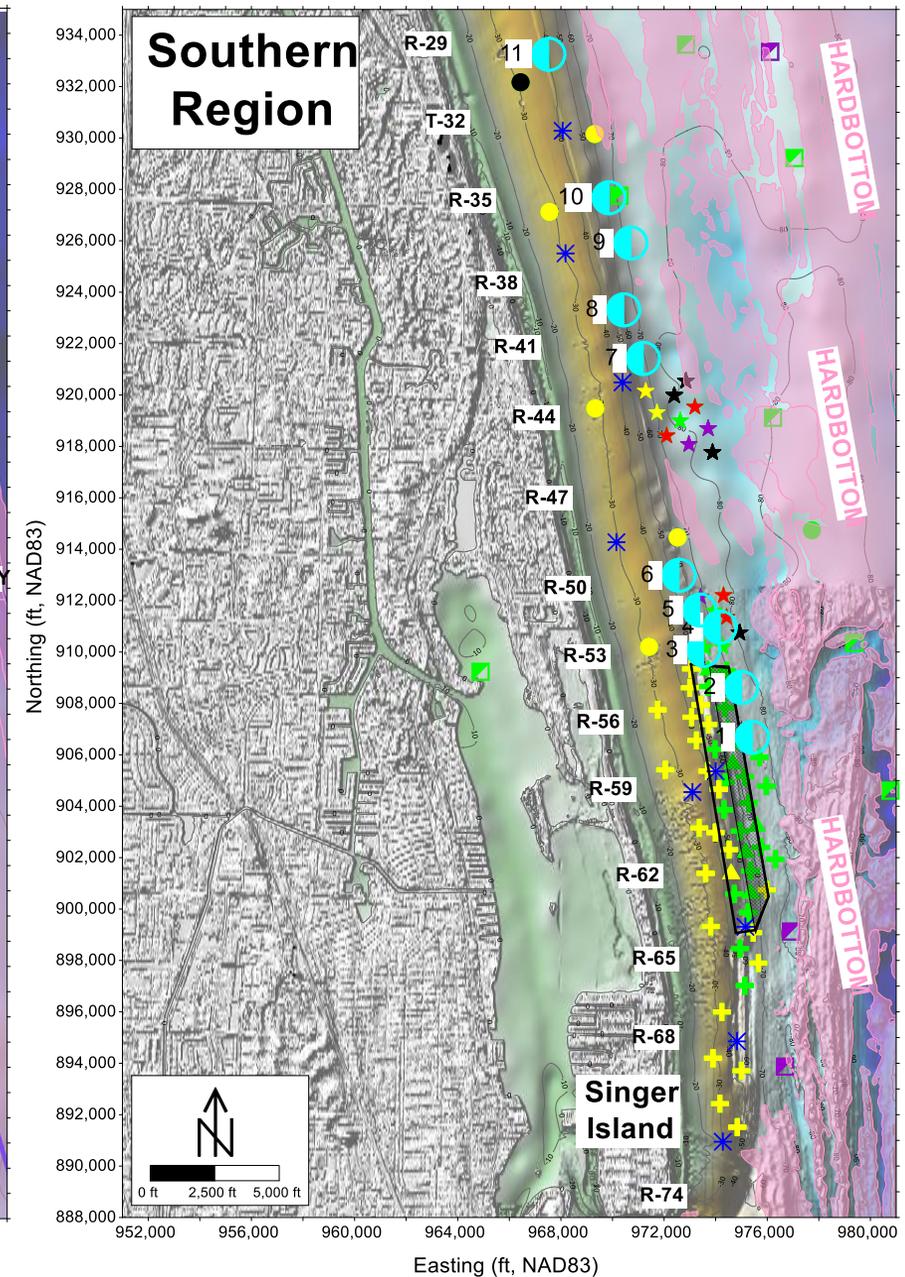
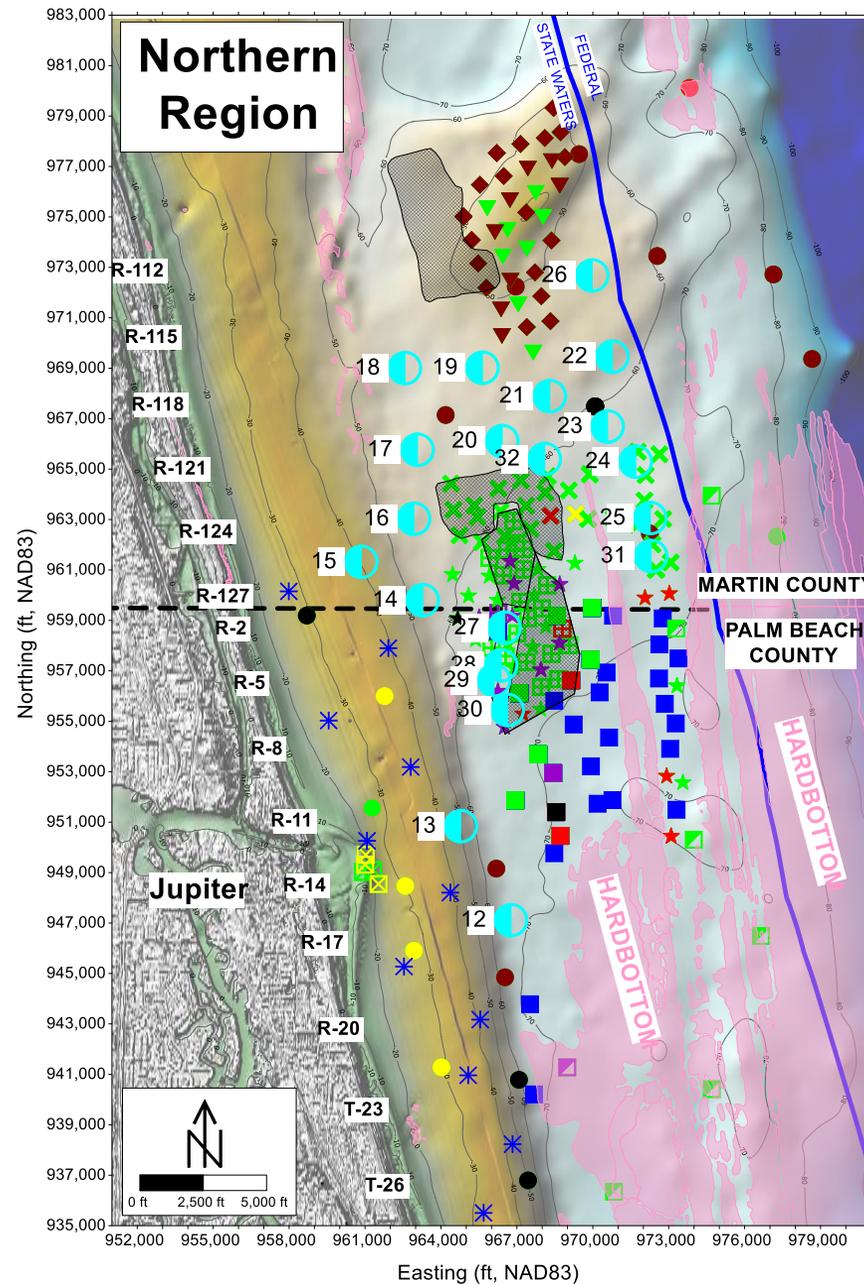
- Multiple GSD or Color Issues
- % Passing on #200 or #230 >5%
- % Retained on #4 >20% or #5 >22%
- Mean Grain Size <0.2 mm
- Munsell Value <5 or Chroma >
- Missing Granulometric Data
- No GSD or Color Issues



Proposed Cores

Disqualifying Factor Above 5' Depth

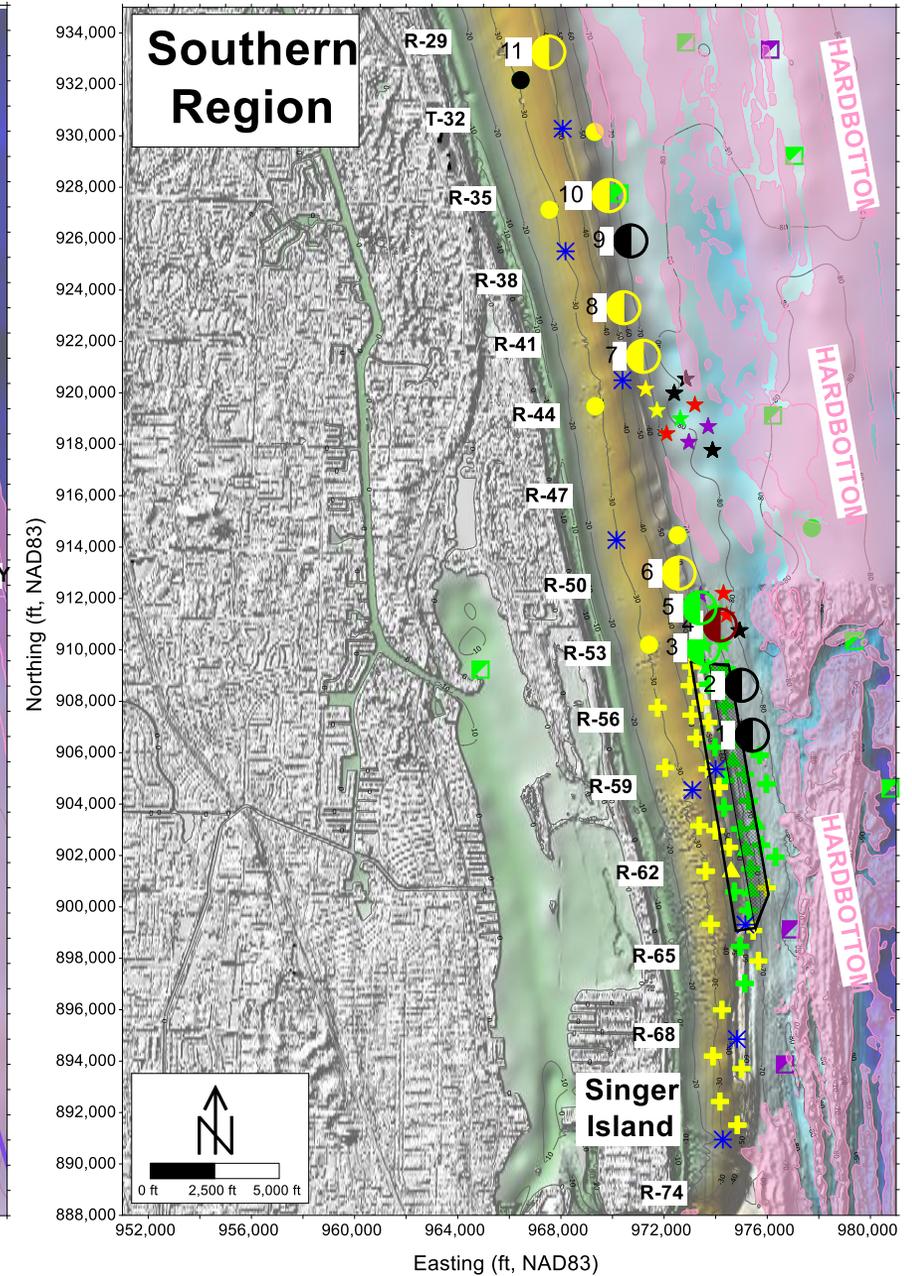
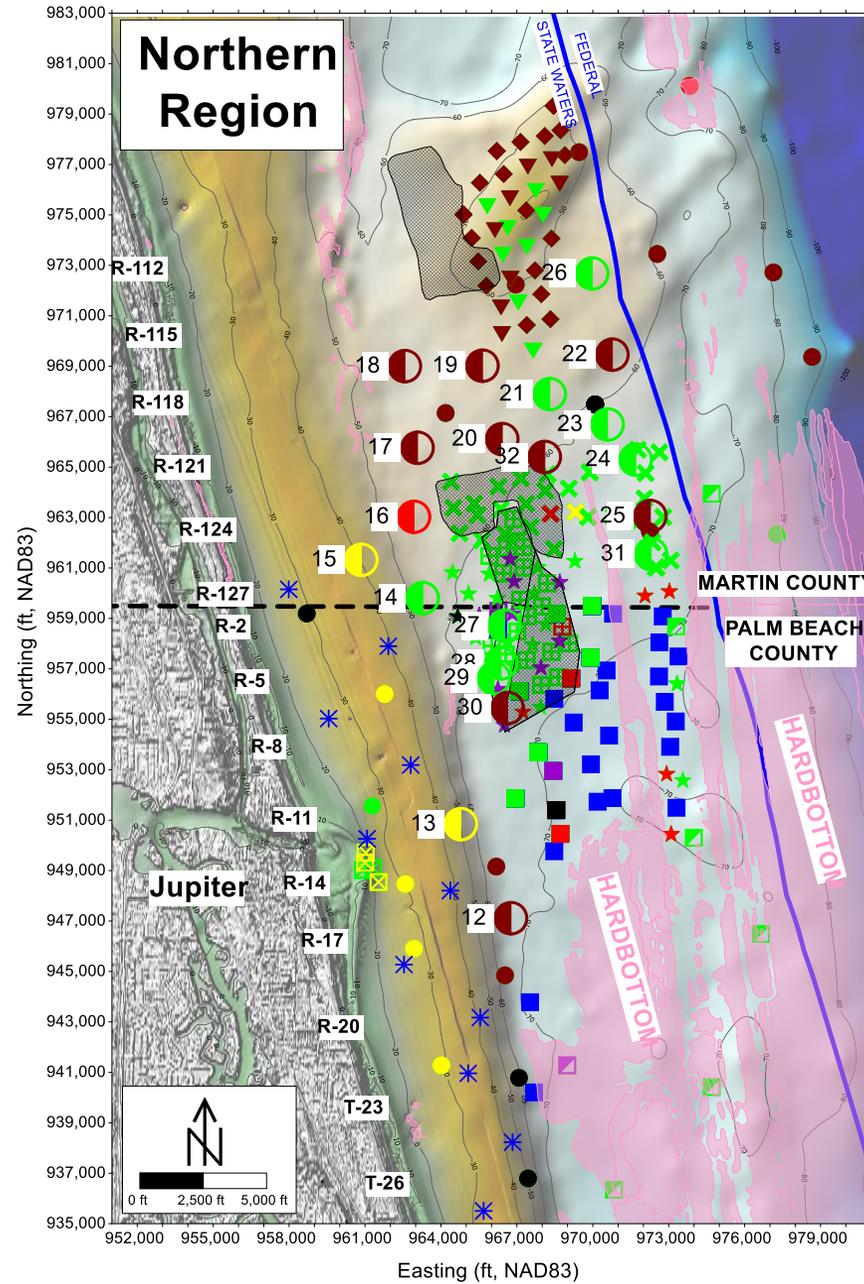
-  Multiple GSD or Color Issues
-  % Passing on #200 or #230 >5%
-  % Retained on #4 >20% or #5 >22%
-  Mean Grain Size <0.2 mm
-  Munsell Value <5 or Chroma >
-  Missing Granulometric Data
-  No GSD or Color Issues



Preliminary Results

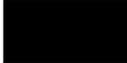
Disqualifying Factor Above 5' Depth

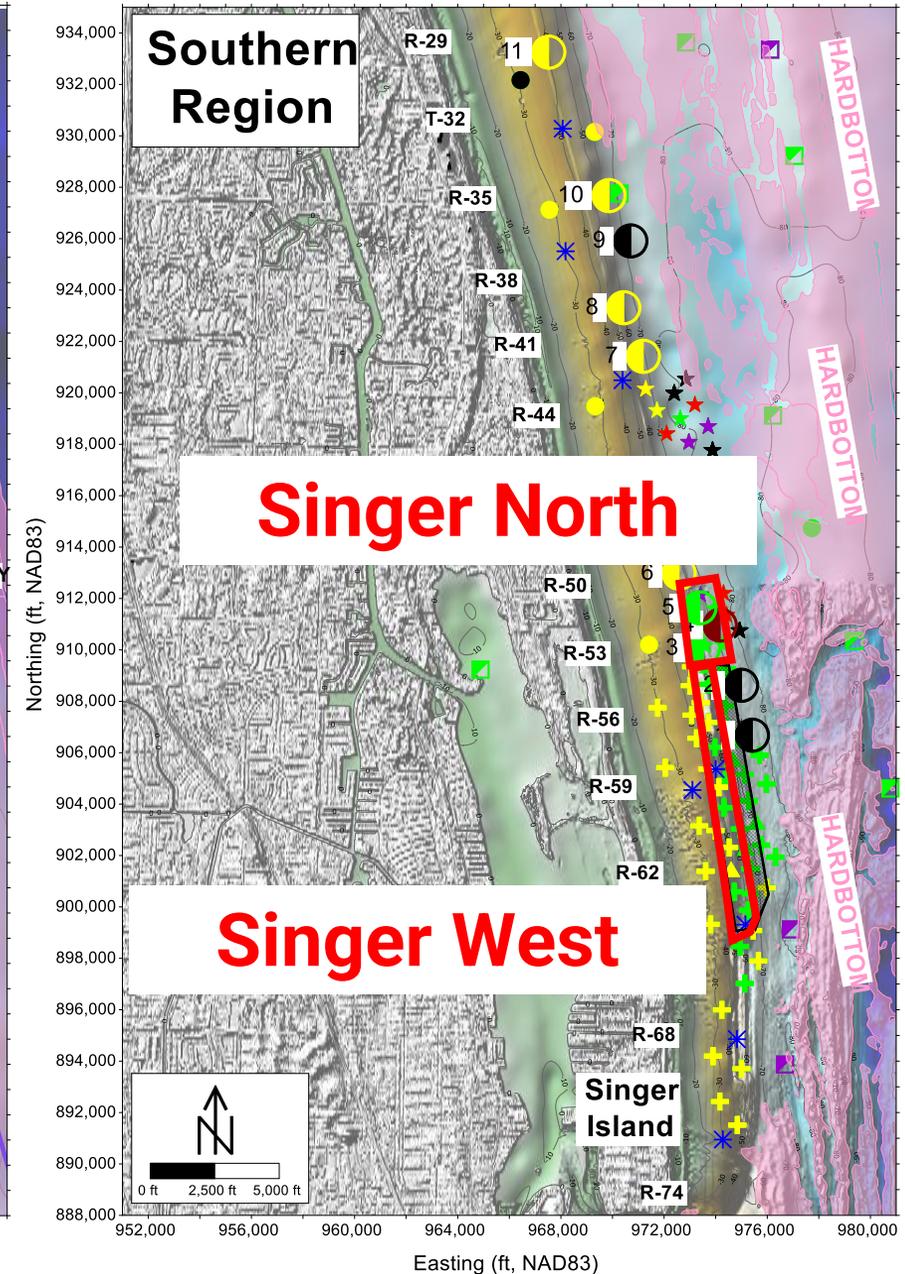
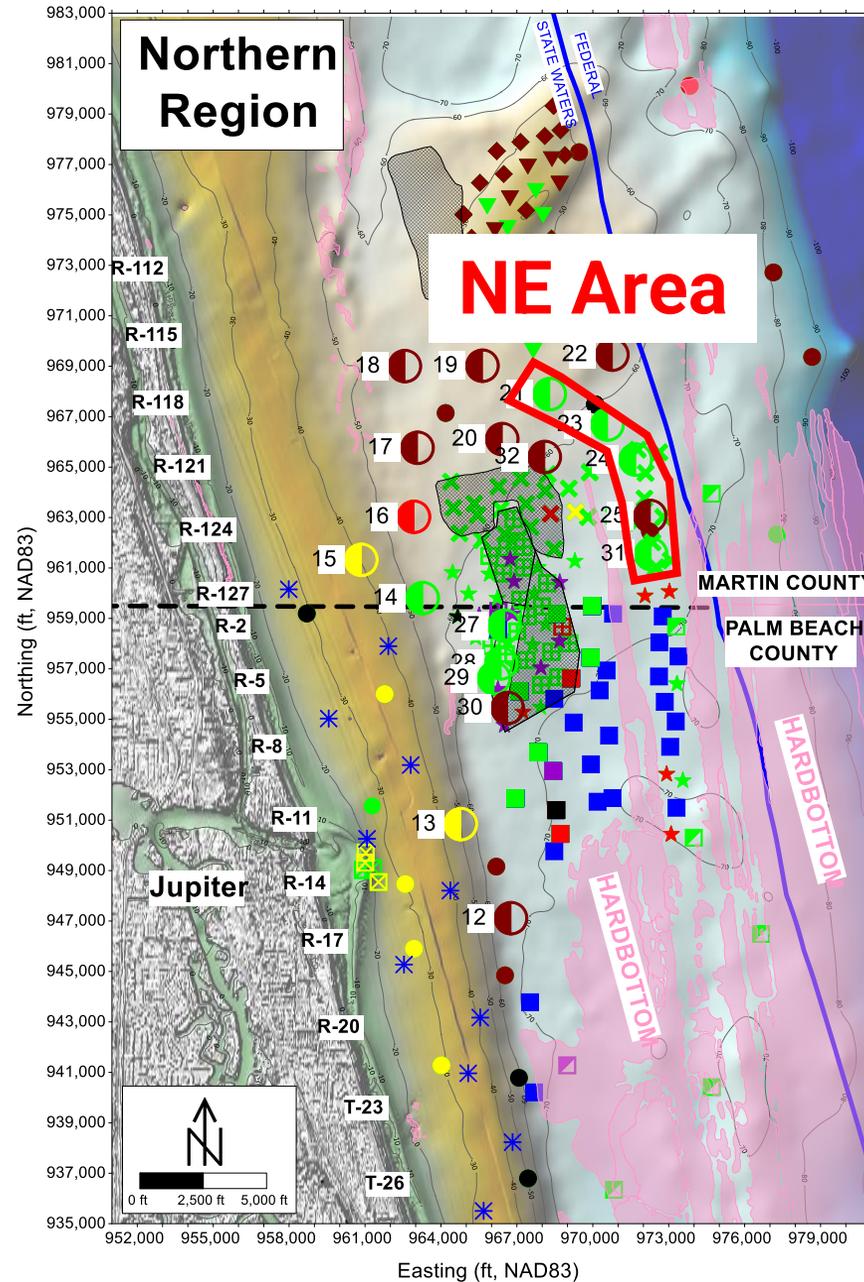
-  Multiple GSD or Color Issues
-  % Passing on #200 or #230 >5%
-  % Retained on #4 >20% or #5 >22%
-  Mean Grain Size <0.2 mm
-  Munsell Value <5 or Chroma >
-  Missing Granulometric Data
-  No GSD or Color Issues



Target Areas

Disqualifying Factor Above 5' Depth

-  Multiple GSD or Color Issues
-  % Passing on #200 or #230 >5%
-  % Retained on #4 >20% or #5 >22%
-  Mean Grain Size <0.2 mm
-  Munsell Value <5 or Chroma >
-  Missing Granulometric Data
-  No GSD or Color Issues



2025 Sand Search - Results

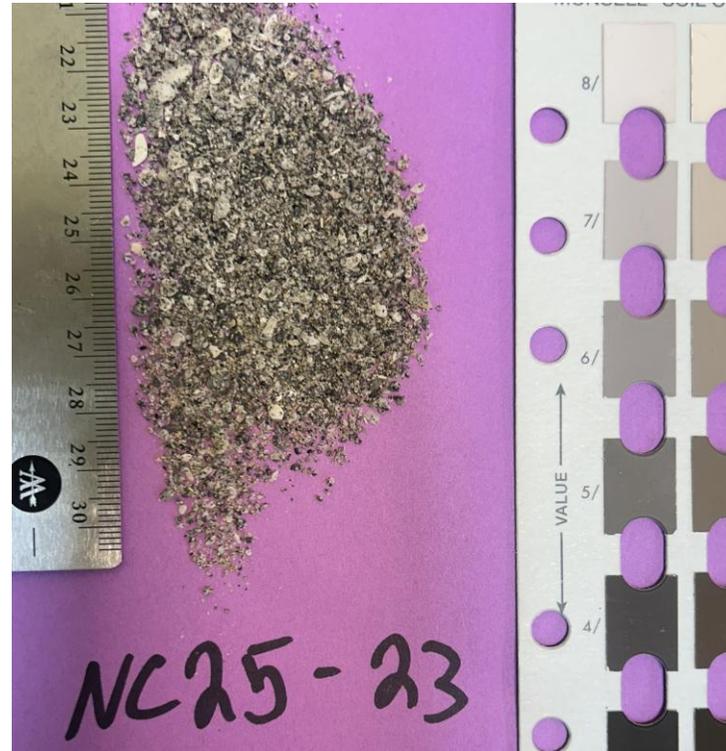
◆ NE Area

- Fine to medium carbonate/quartz sand
- 'Salt and pepper' color
- Mean Grain Size ~0.5 mm
- Little silt/clay or large shell

◆ Singer North

- Fine to medium carbonate/quartz sand
- 'Salt and pepper' color
- Mean Grain Size ~0.4 mm
- Little silt/clay; some large shell

NE Area



Singer North



Conclusions

- ◆ Many areas offshore of NCCSPP can be **ruled out** as potential sand sources
- ◆ **Three target areas** have been identified for potential borrow area design
- ◆ **Exhaustive offshore sand search**
- ◆ **We anticipate the target areas are the last deposits of suitable offshore sediment for NCCSPP**



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