

Stakeholder Meeting

Blind Pass Inlet Management Study

Status Update

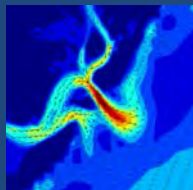
March 24, 2017

10:00 AM, Pelican Room

Sanibel Recreation Center



- Study Overview
 - What is an inlet management study?
 - Study Objectives
 - Study Scope
- Study Status
- Discussion



What is an inlet management study?

- Evaluate changes and trends in the inlet, shoals and adjacent beaches
- Establish maintenance options
- Establish monitoring plan



Study Objectives

- Update 1995 Inlet Management Study
- Maintain Blind Pass in an open condition
- More effective dredging/nourishment
- Extend the life of related beach projects
- Protect the existing infrastructure
- Maintain existing level of recreation access and use
- Define potential impacts to navigation



Study Scope

- Inlet history
- Sediment budget
- Develop and test management strategies
- Management recommendations
- Study report

❖ FDEP adoption of plan

Stakeholder Input
Technical Advisory Committee



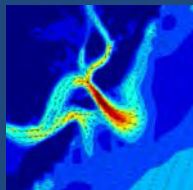
■ Study Overview

- What is an inlet management study?
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■ Study Status

- Completed: Blind Pass History, Sediment Budget, Model Development
- In progress: Alternatives Development & Assessment of Preliminary Results

■ Discussion







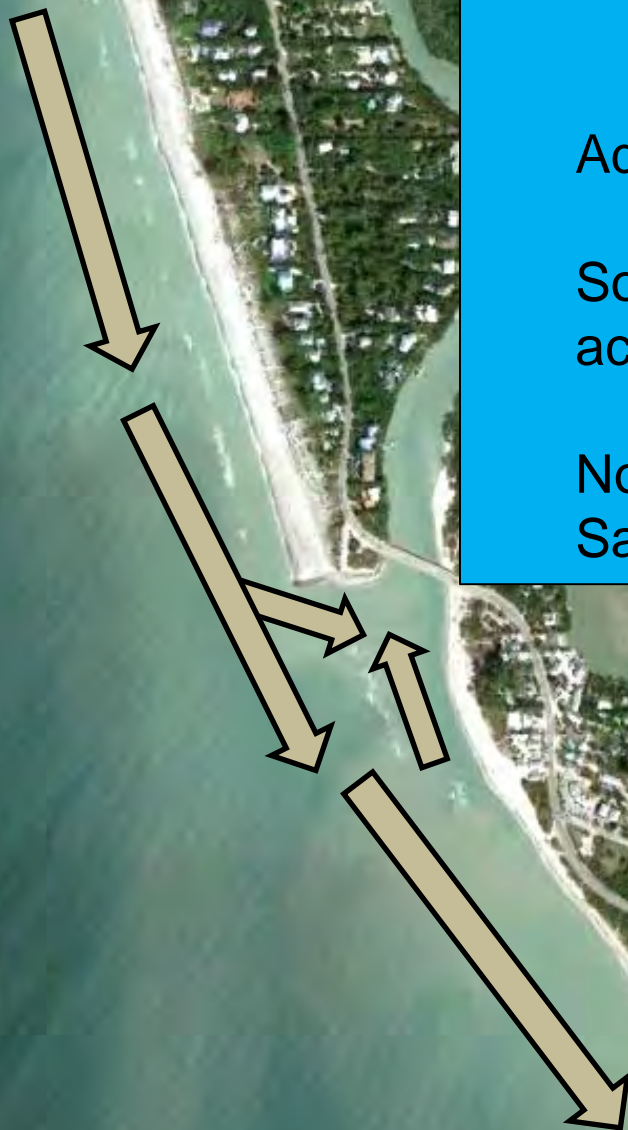


General Findings

Adjacent beaches are erosional

Southerly flow along Captiva and
across Blind Pass

Northerly flow from north end of
Sanibel into Blind Pass



Trends Identified

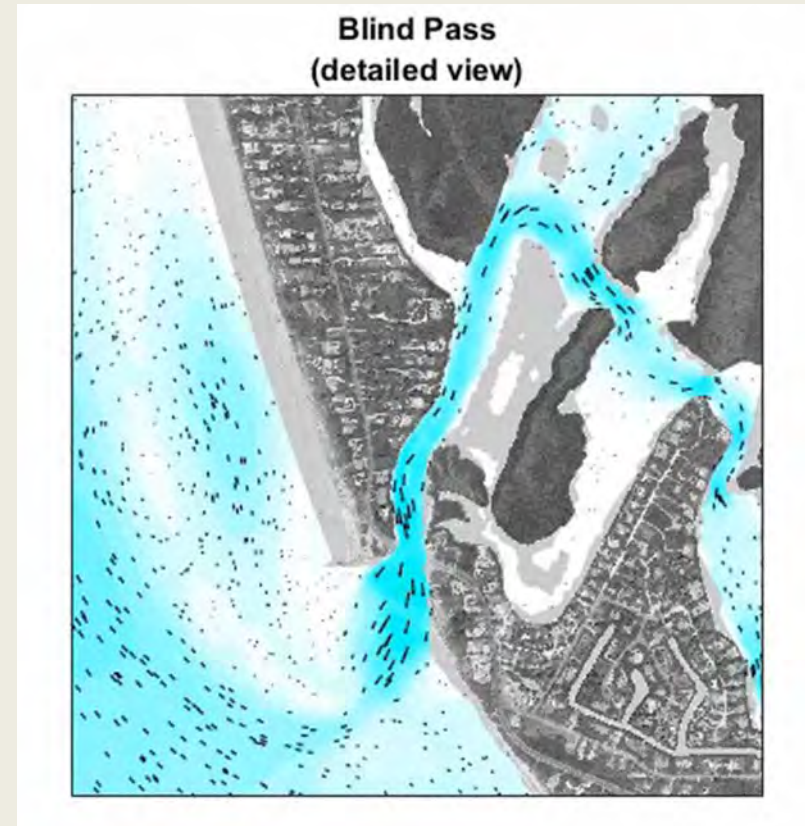
- Jetty stabilizes Turner Beach
- Shoals form and migrate rapidly
- Meandering channel
- Erosional pressure on north end of Sanibel

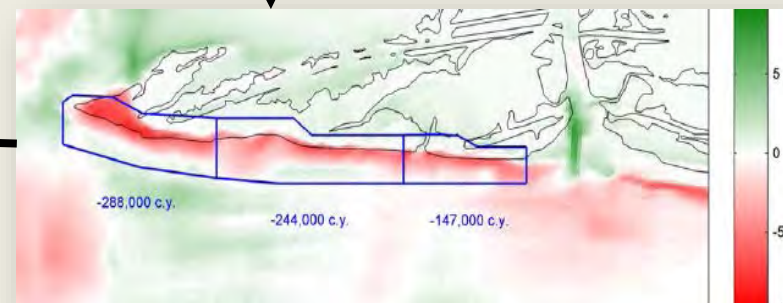
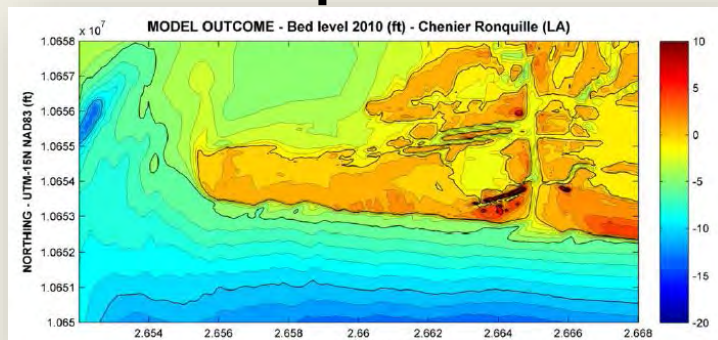
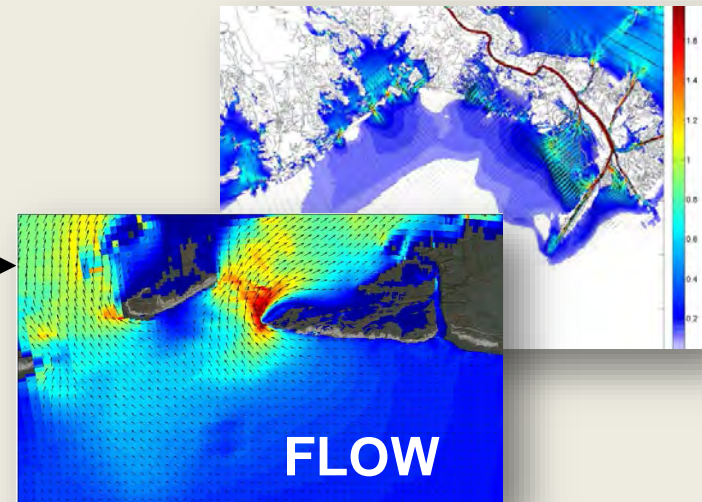
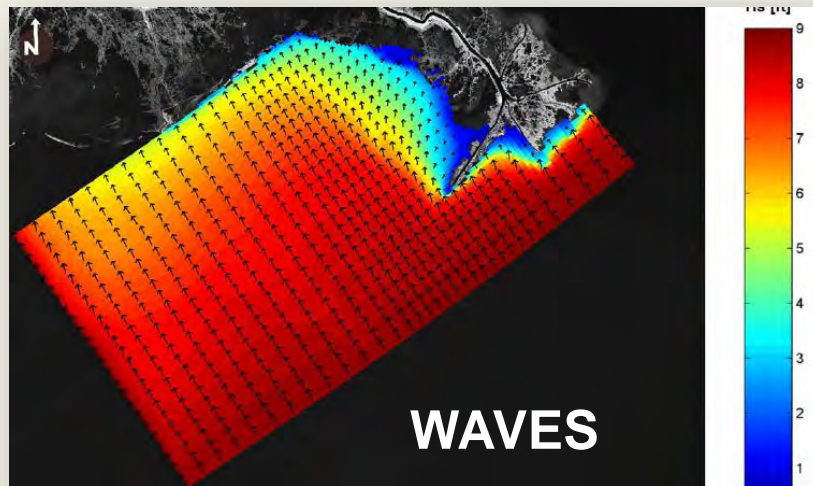
Factors that may be contributing are longshore transport, tidal prism, currents; which will be evaluated with the model.

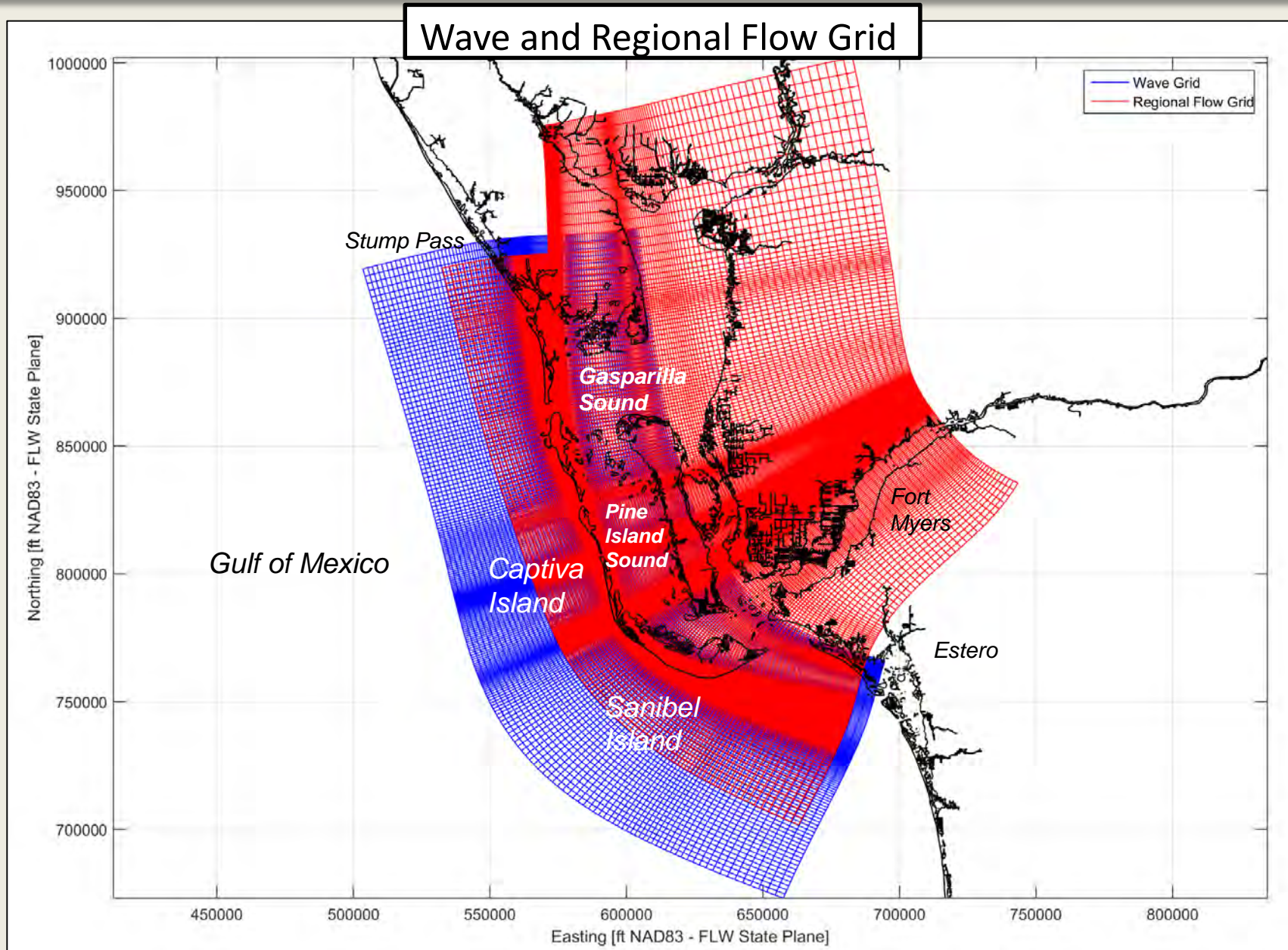


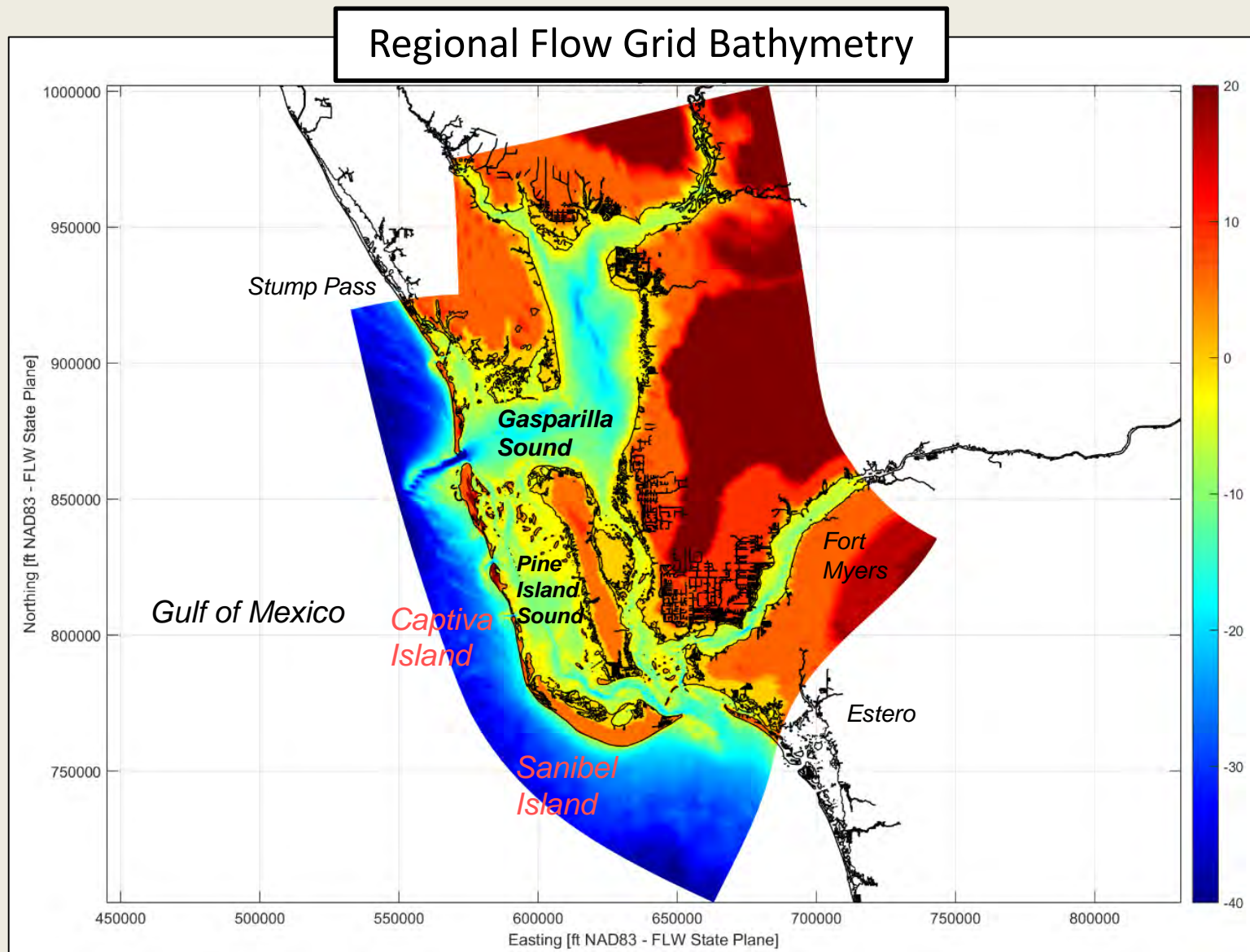
Numerical Modeling

- **Purpose:** Used to simulate and compare outcomes of proposed management strategies and “no action” scenario
- **Program:** Delft3D – State of the art tool
- **How does it work?**
 - Input data (bathymetry, waves, tides, currents, etc.)
 - Simulates “morphology”
 - Outputs final bathymetry



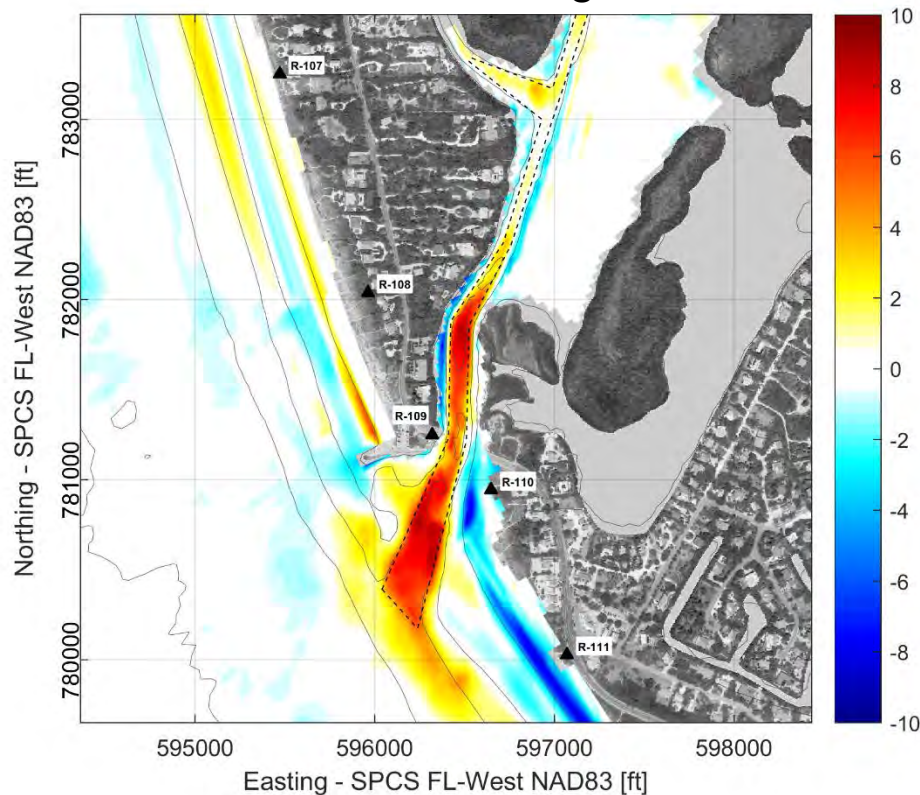




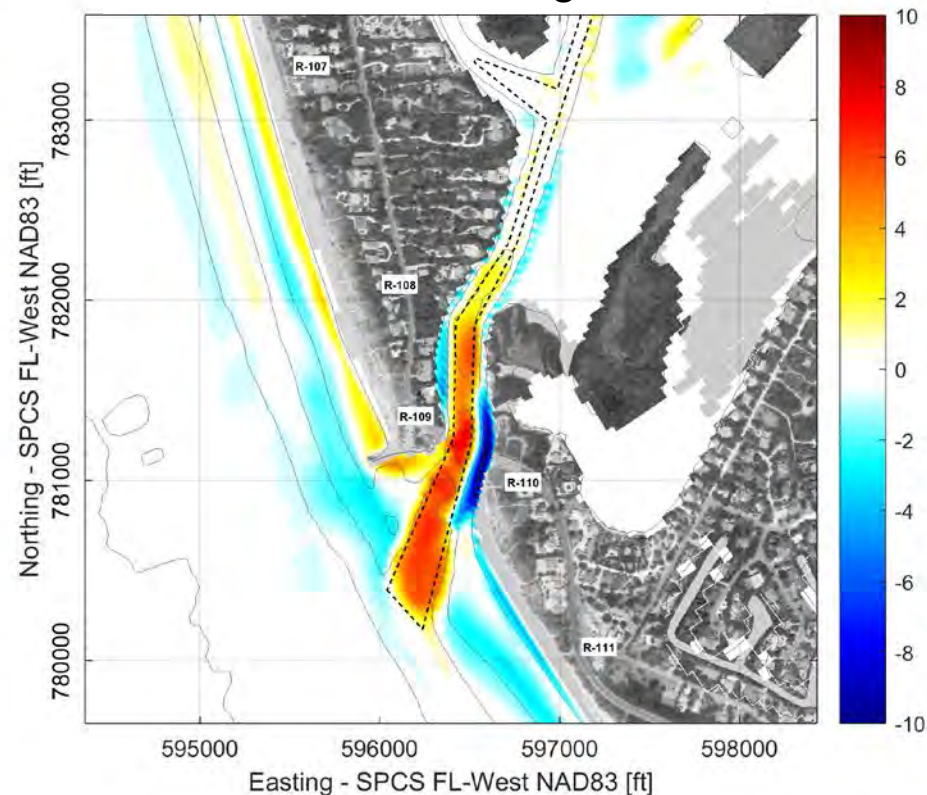


Calibration Results

Measured Changes

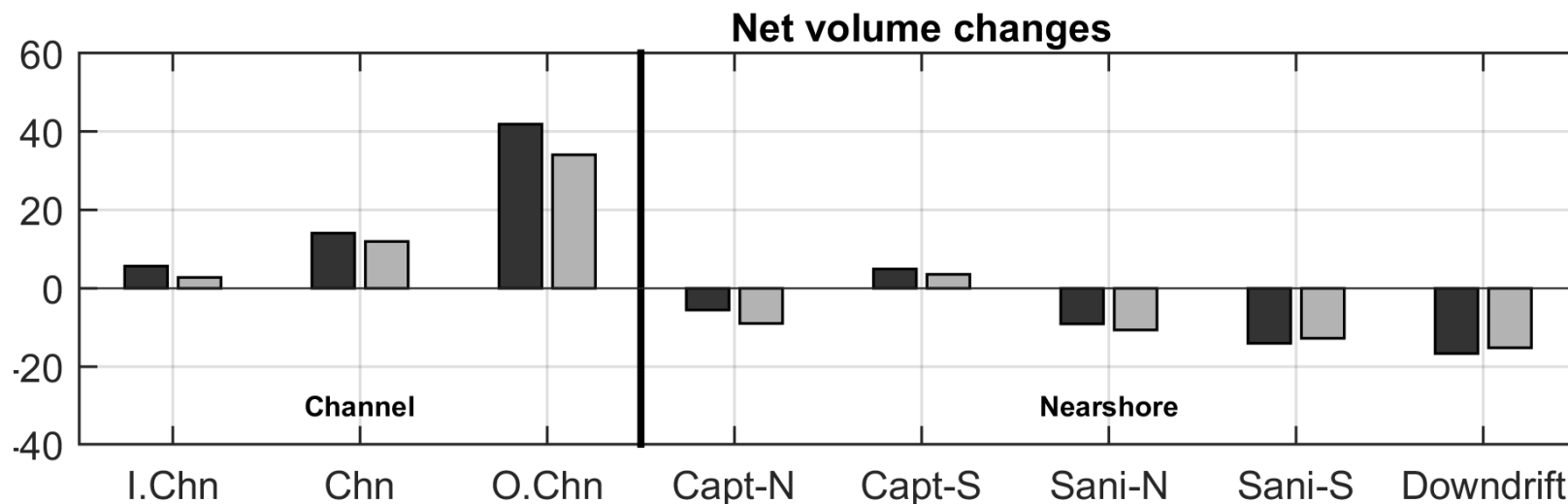


Modeled Changes





Calibration Results



Legend:
Black: Measured
Gray: Modeled

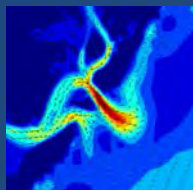
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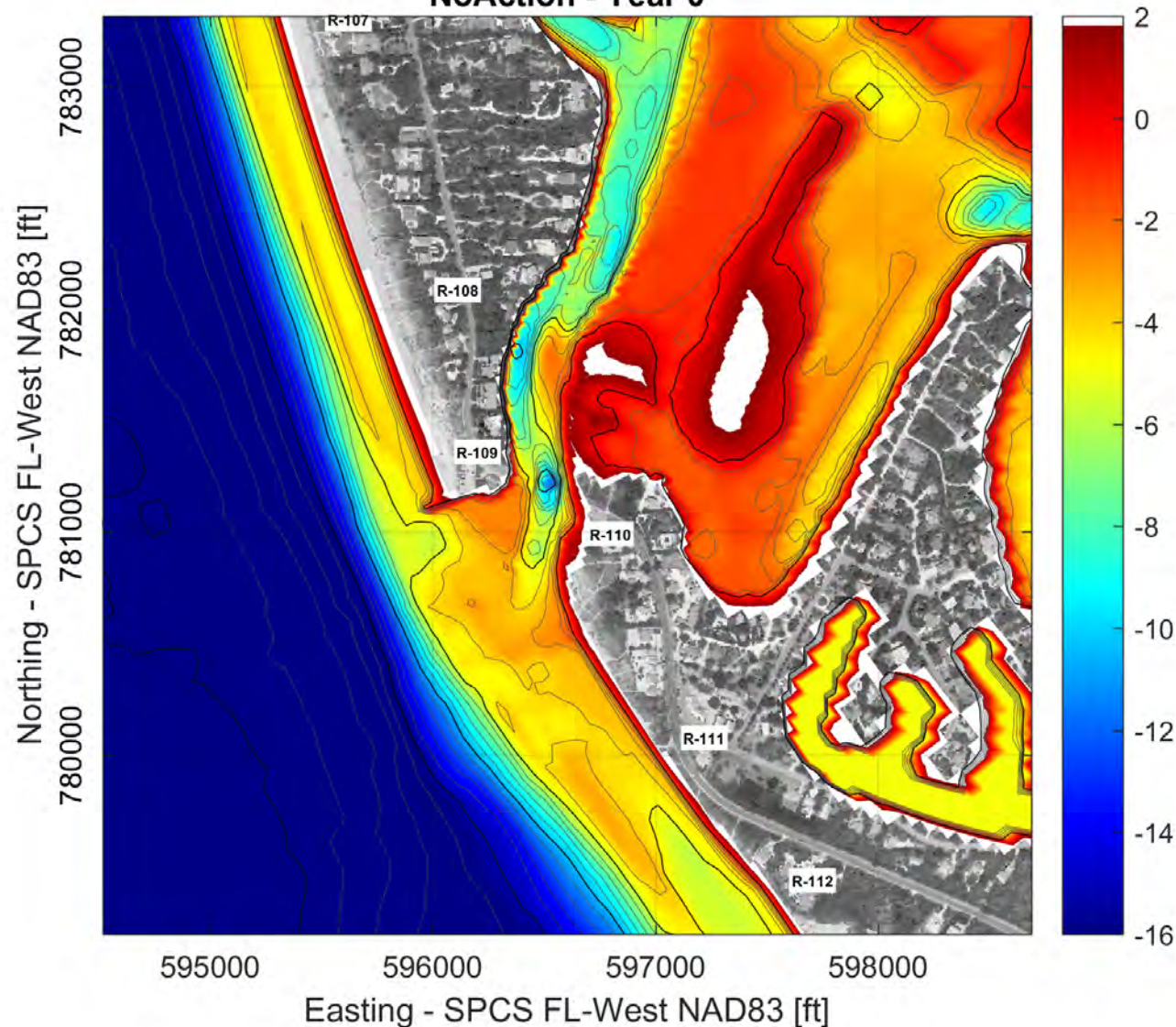
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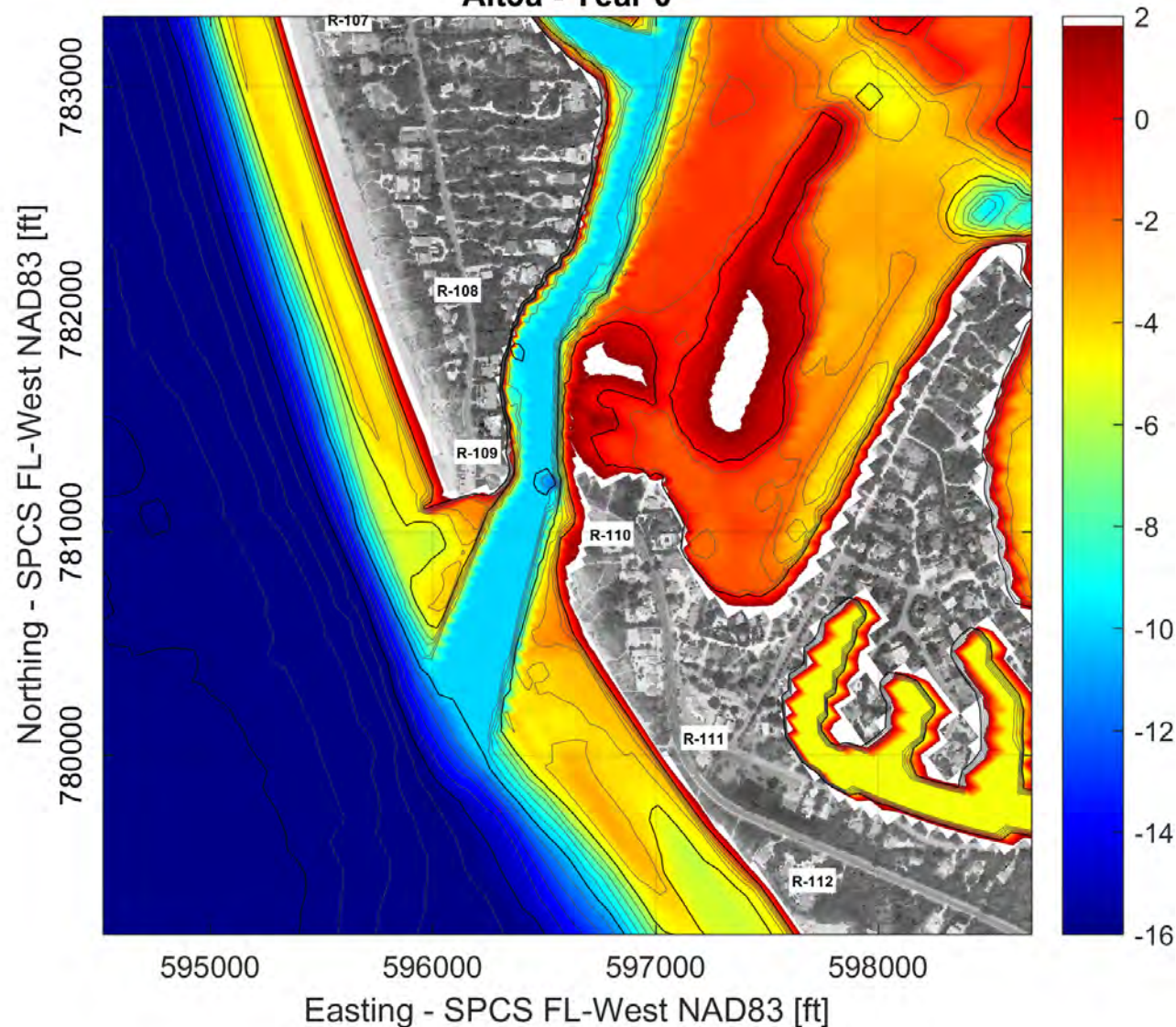
Computed bathymetry [ft NAVD]
NoAction - Year 0



PRELIMINARY TESTING

- No action

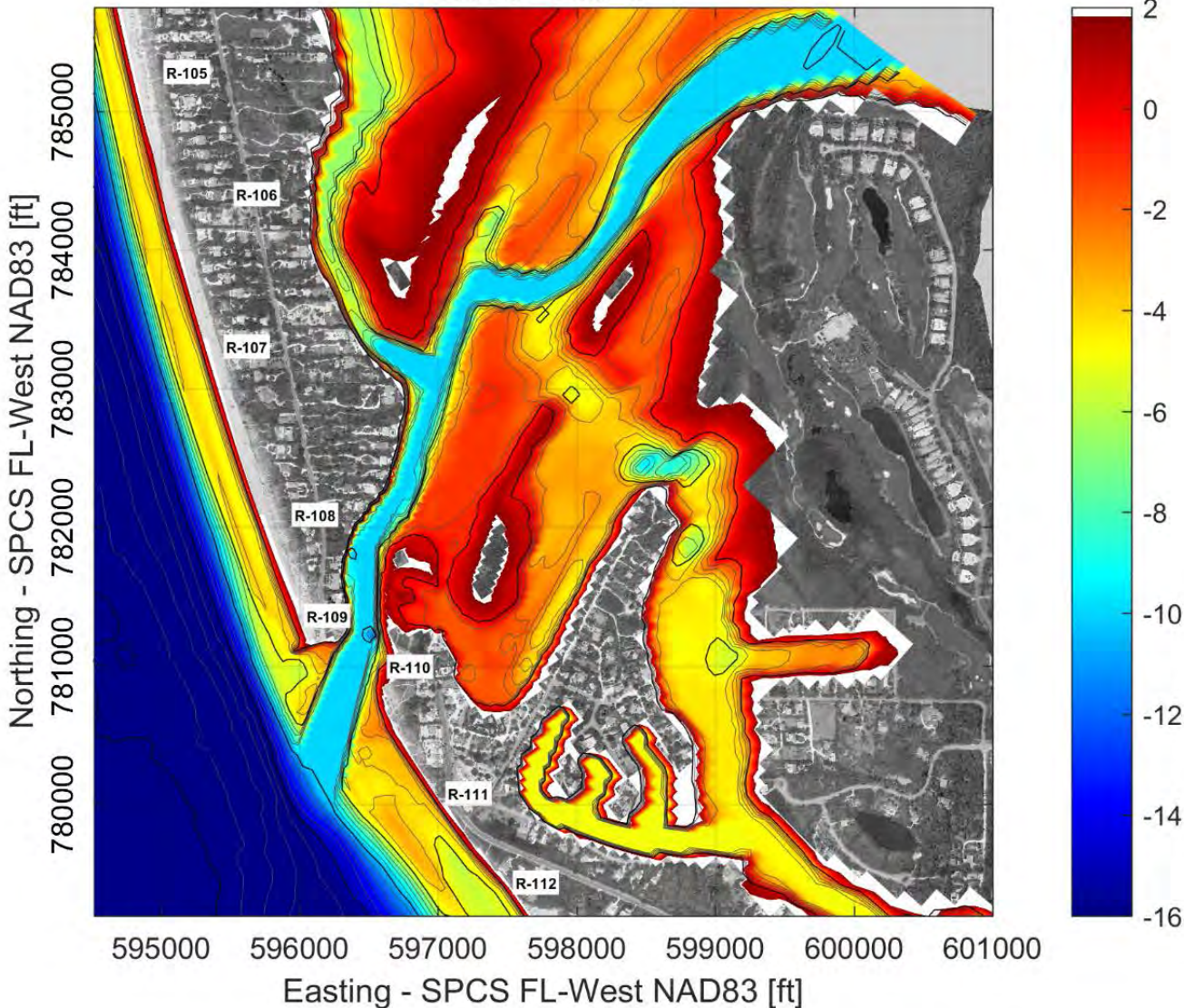
Computed bathymetry [ft NAVD]
Alt3a - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template

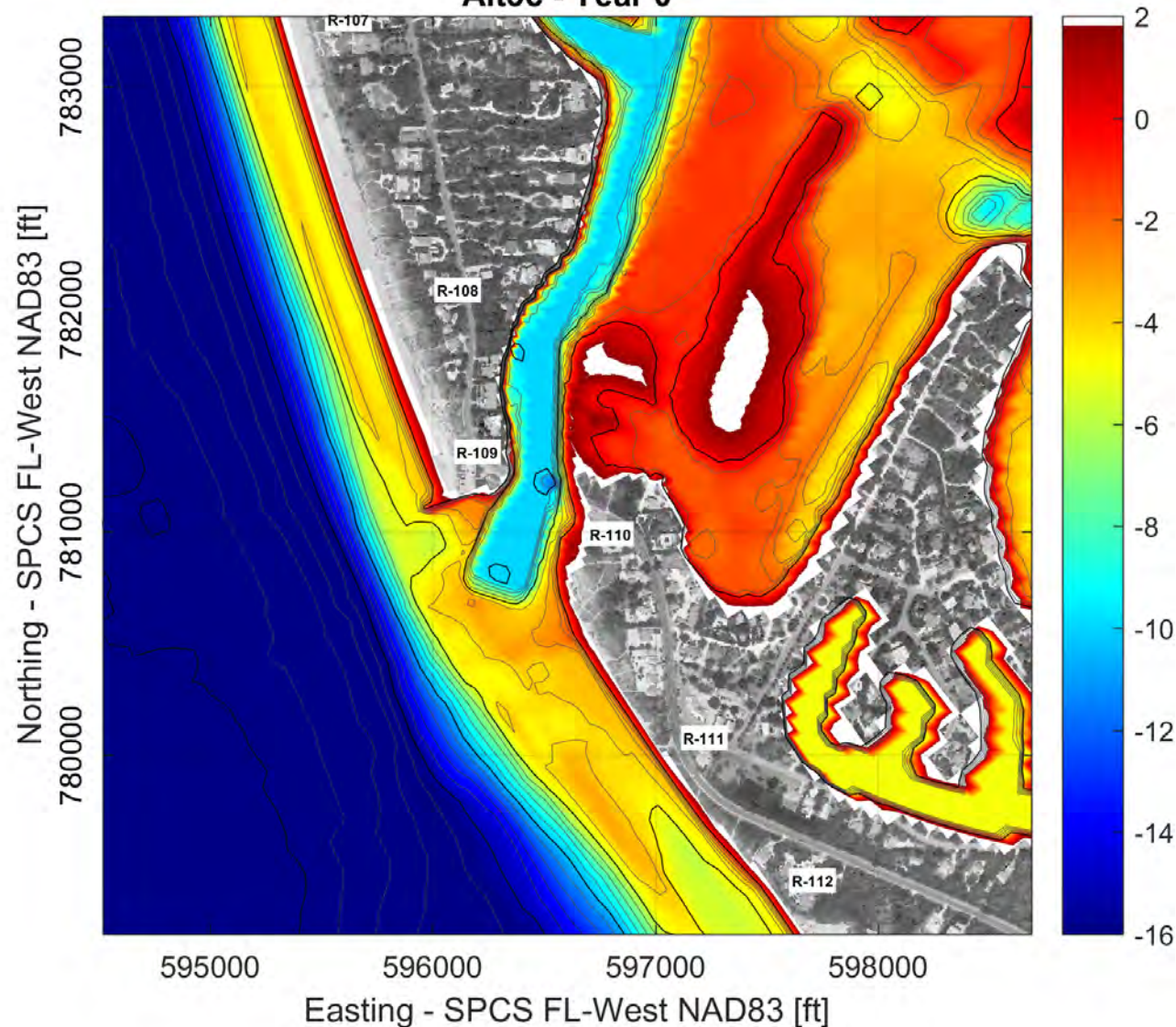
Computed bathymetry [ft NAVD]
Alt1b - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- **Wulfert Channel extension & permitted dredge template**

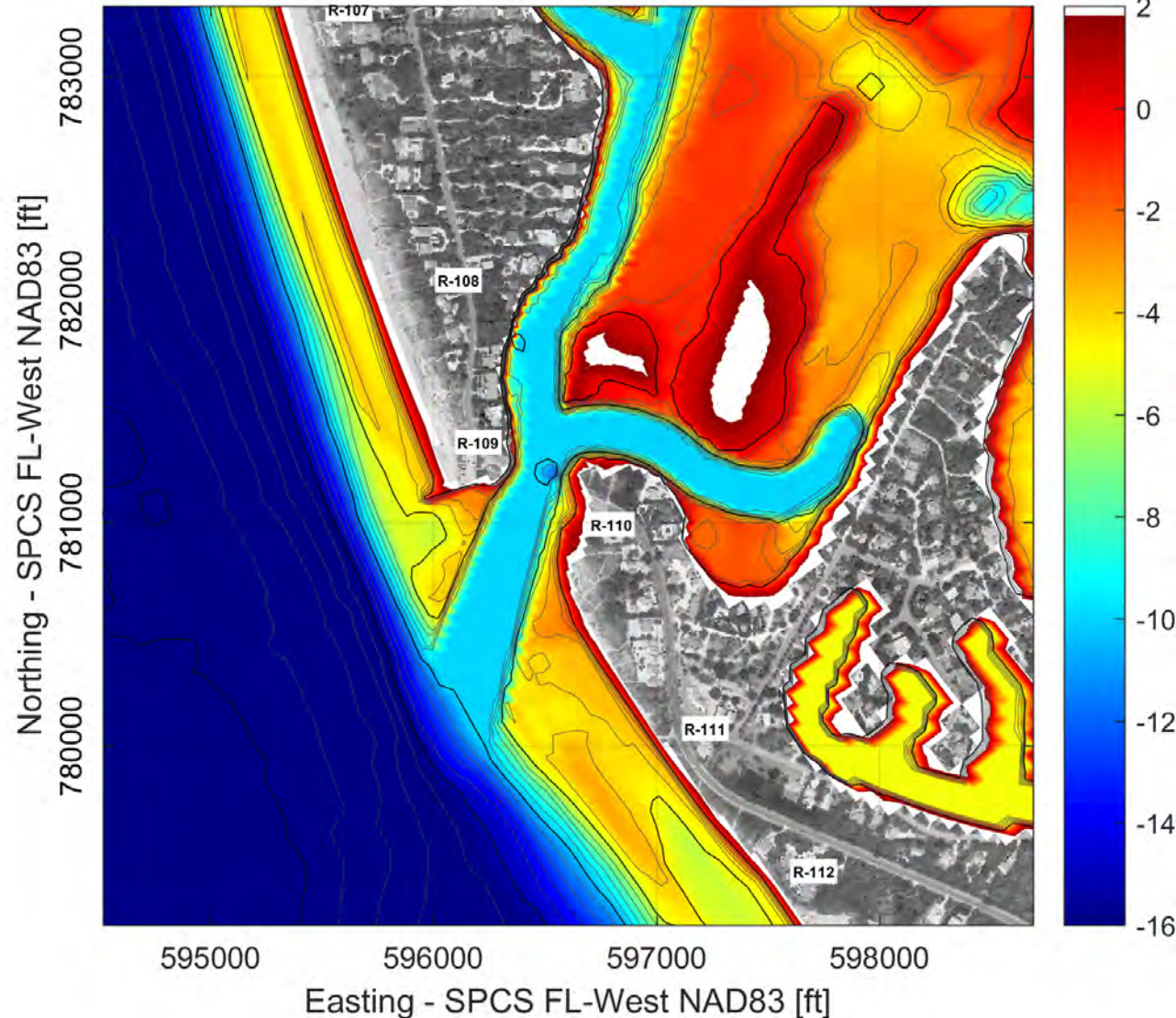
Computed bathymetry [ft NAVD]
Alt3c - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template

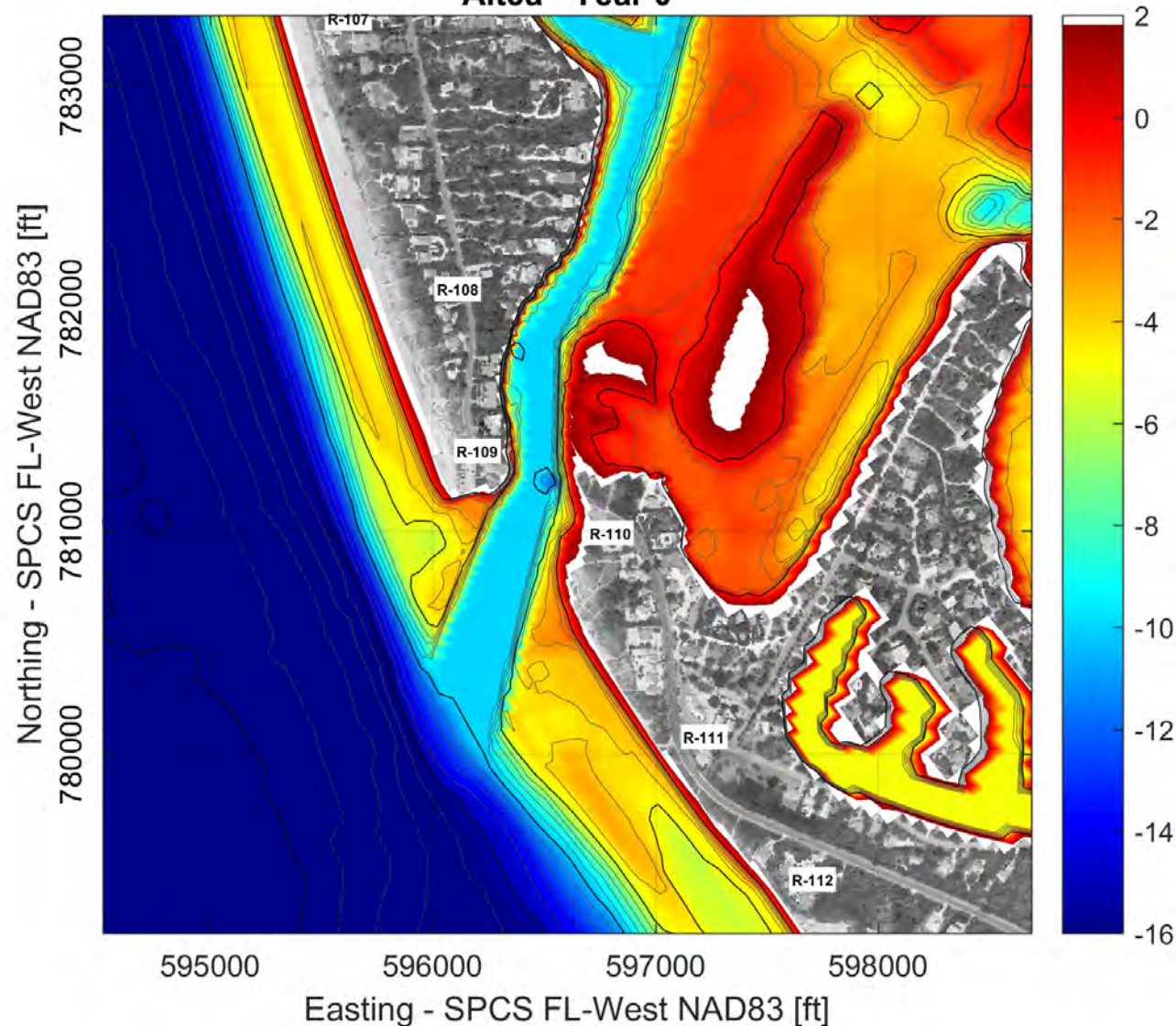
Computed bathymetry [ft NAVD]
Alt4 - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- **Connection to Dinkins Bayou (1995 condition)**

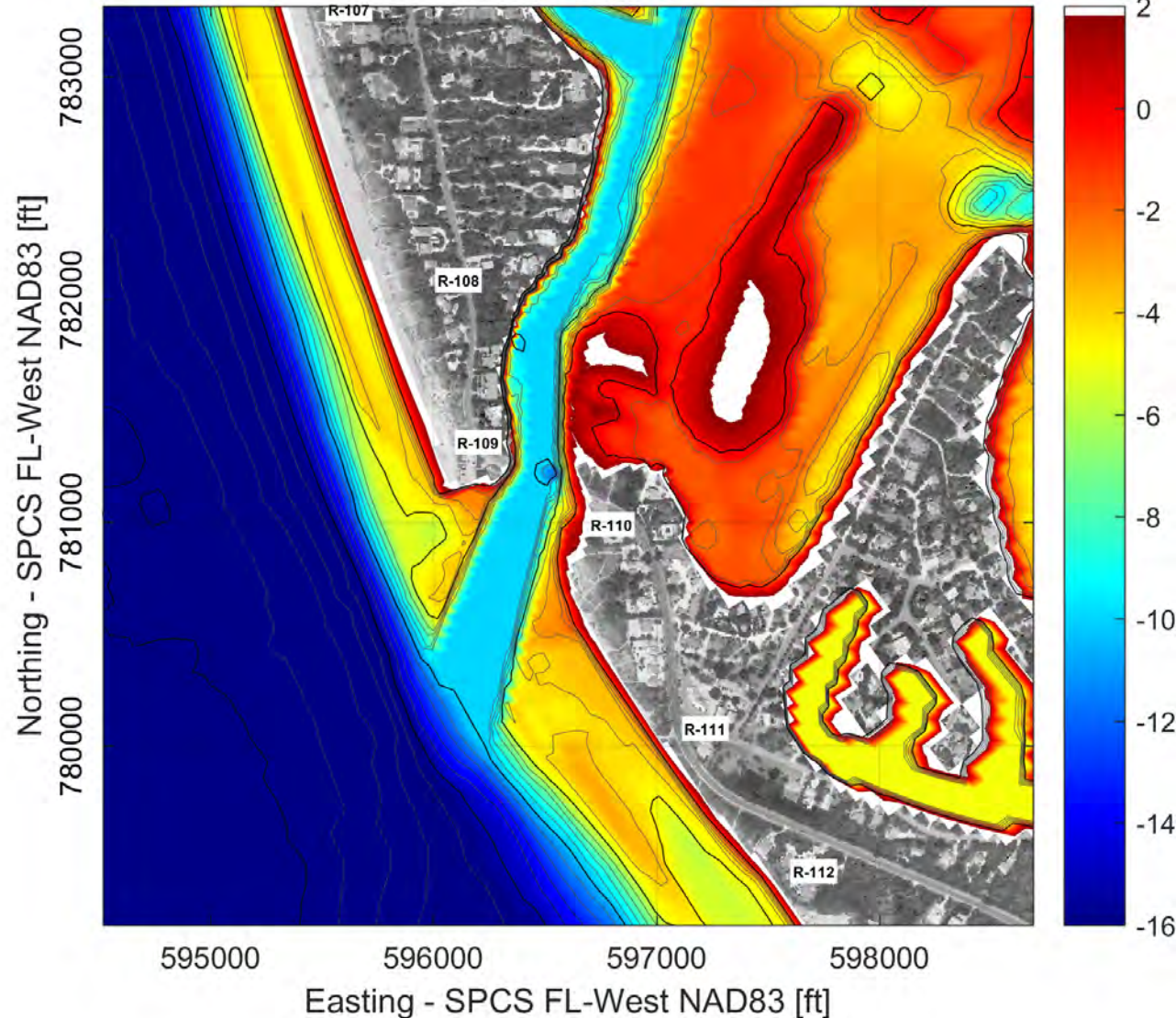
Computed bathymetry [ft NAVD]
Alt5a - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- **Blind Pass jetty: remove**

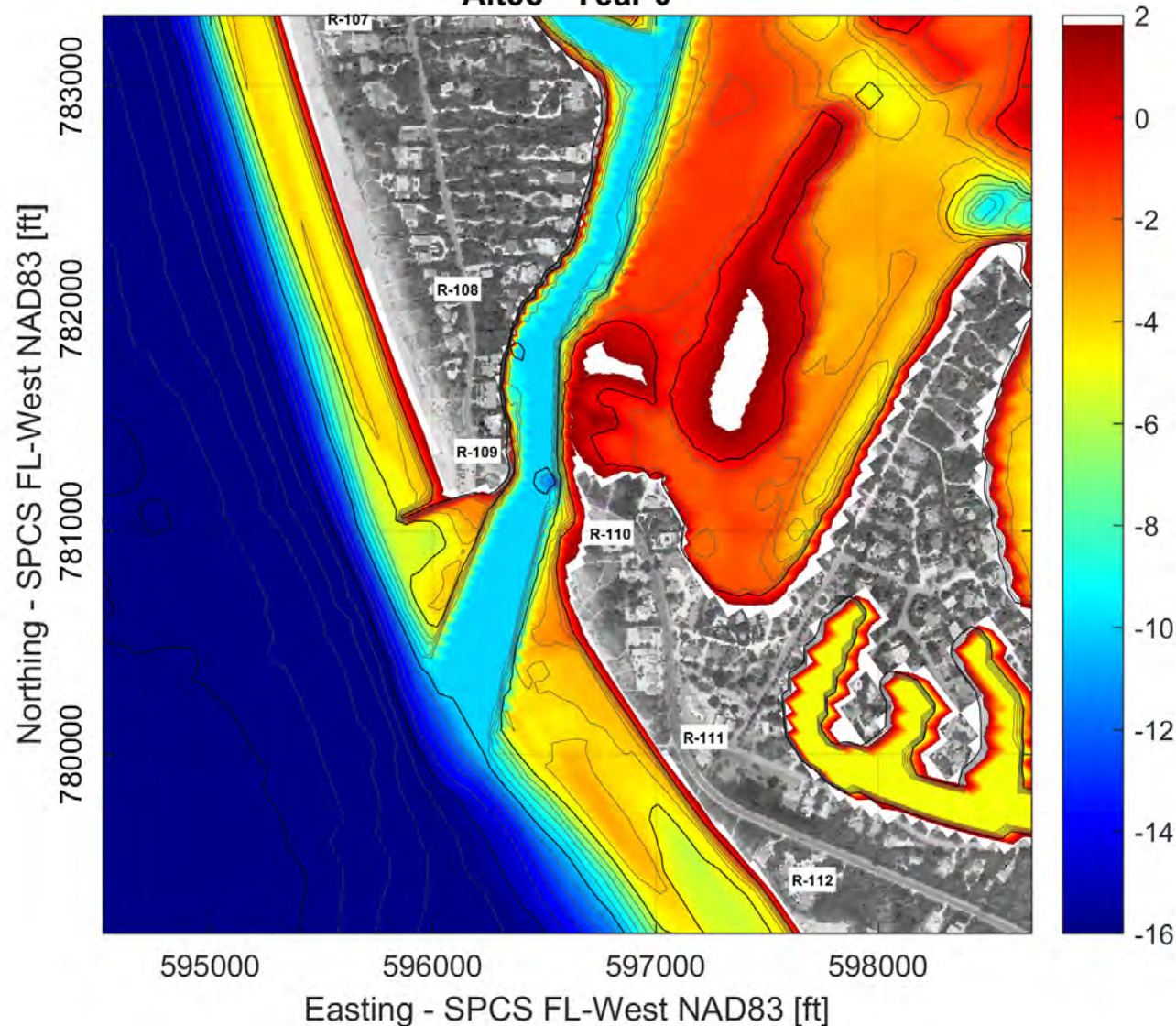
Computed bathymetry [ft NAVD]
Alt5b - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
- **Blind Pass jetty: shorten 50-ft**

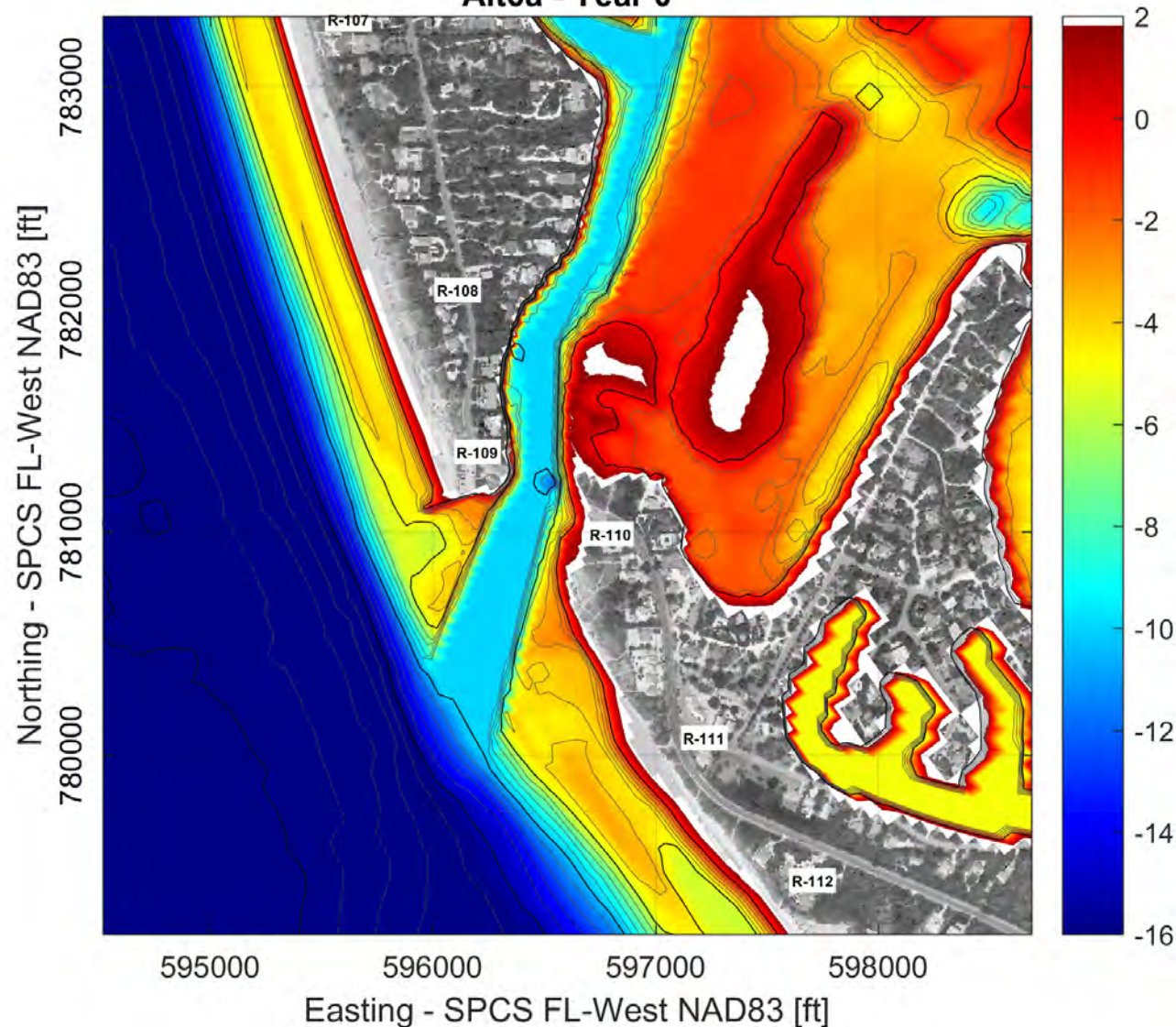
Computed bathymetry [ft NAVD]
Alt5c - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
- Blind Pass jetty: shorten 50-ft
- **Blind Pass jetty: lengthen 50-ft**

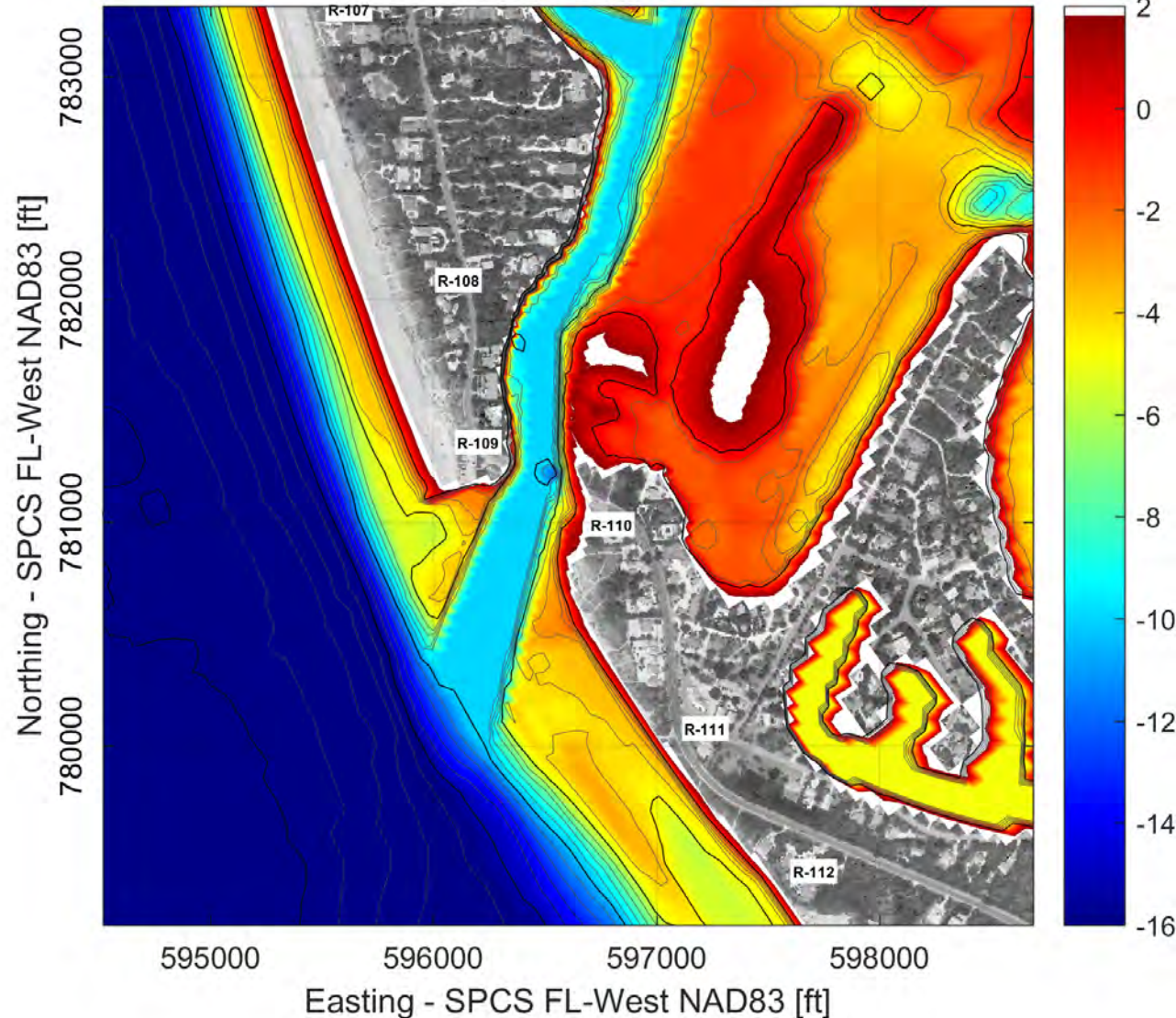
Computed bathymetry [ft NAVD]
Alt6a - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
- Blind Pass jetty: shorten 50-ft
- Blind Pass jetty: lengthen 50-ft
- **Beach fill: North end Sanibel**

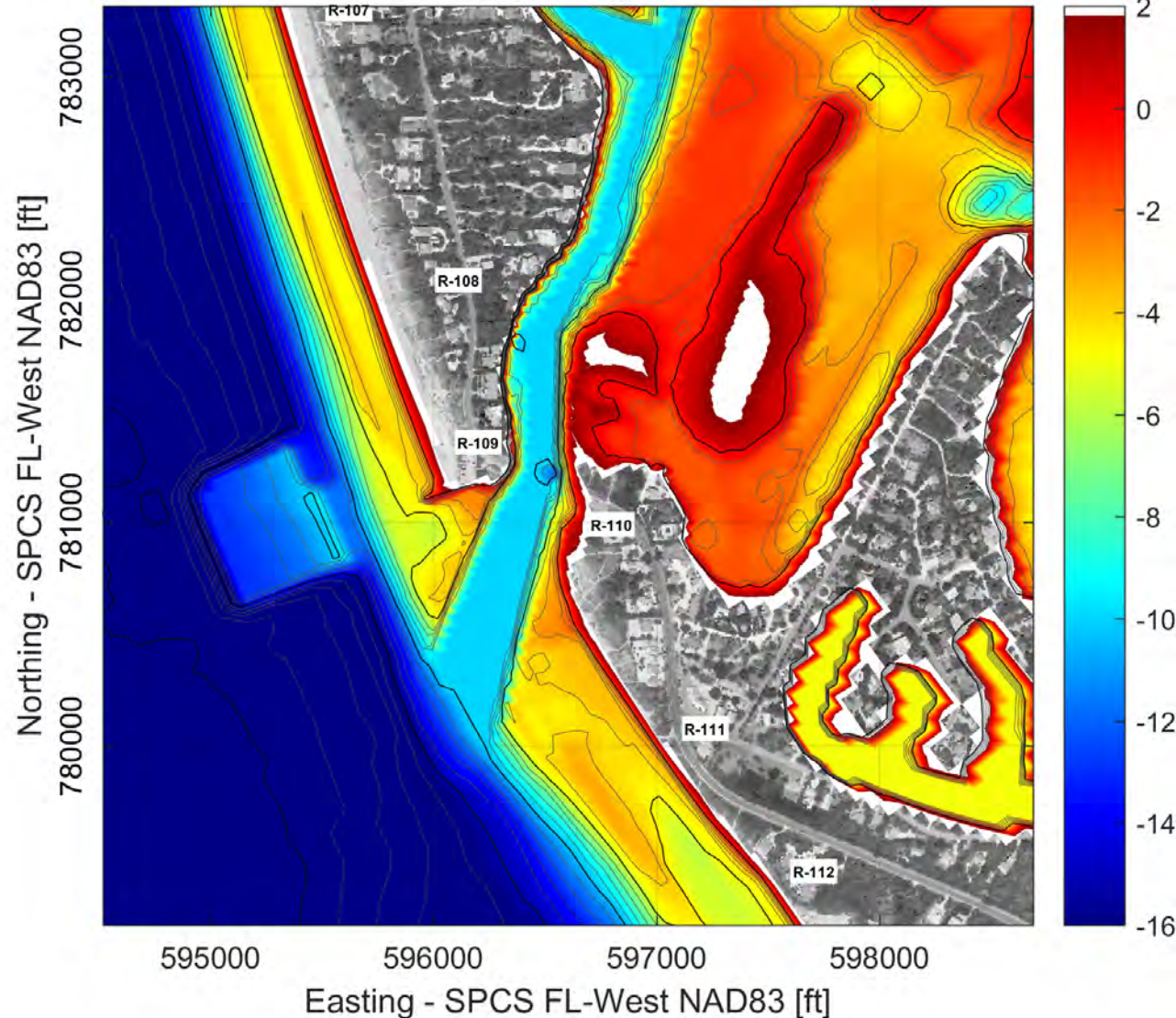
Computed bathymetry [ft NAVD]
Alt6b - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
- Blind Pass jetty: shorten 50-ft
- Blind Pass jetty: lengthen 50-ft
- Beach fill: North end Sanibel
- **Beach fill: Captiva placement**

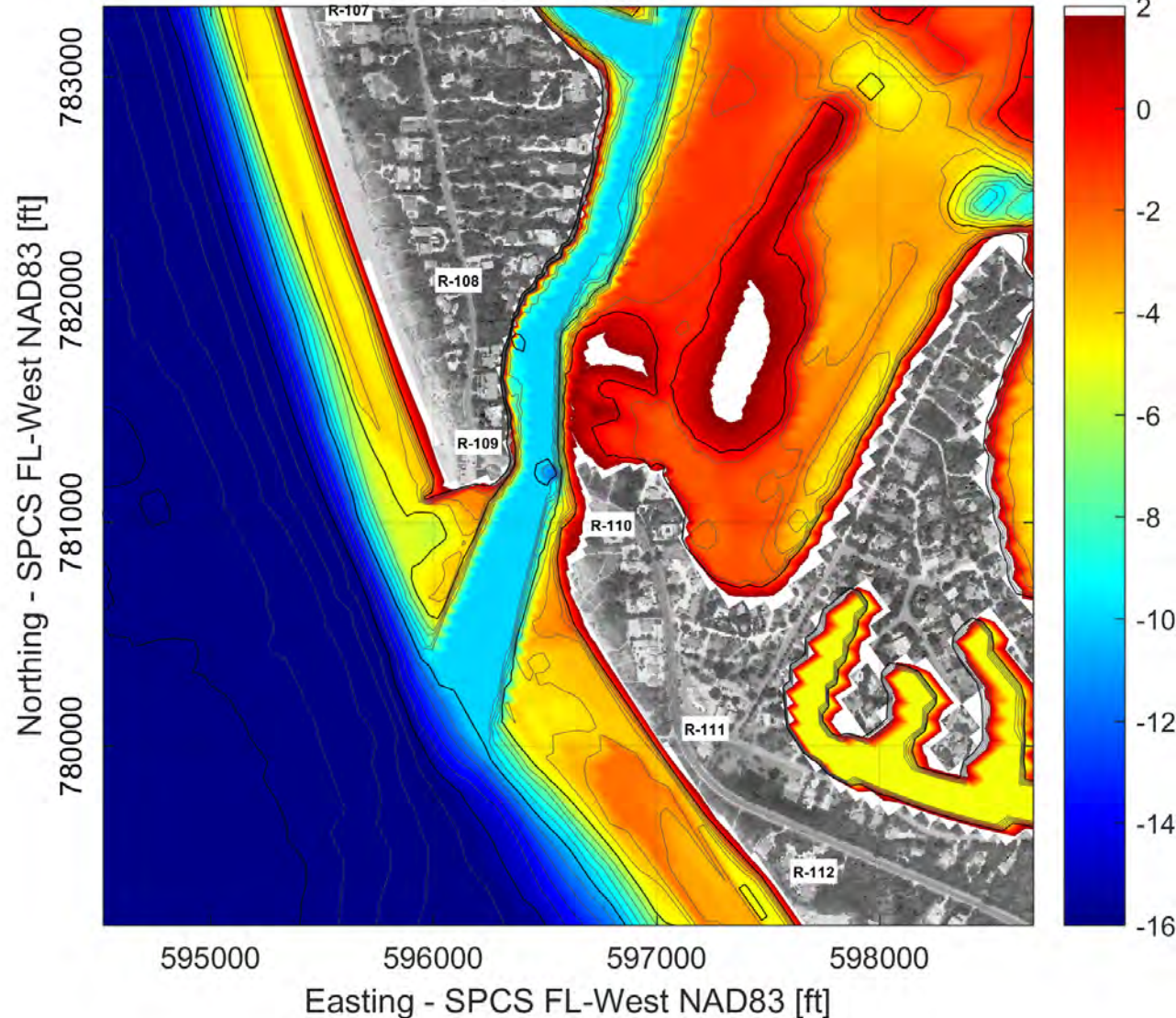
Computed bathymetry [ft NAVD]
Alt6c - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
- Blind Pass jetty: shorten 50-ft
- Blind Pass jetty: lengthen 50-ft
- Beach fill: North end Sanibel
- Beach fill: Captiva placement
- **Beach fill: 'ebb shoal enhancement'**

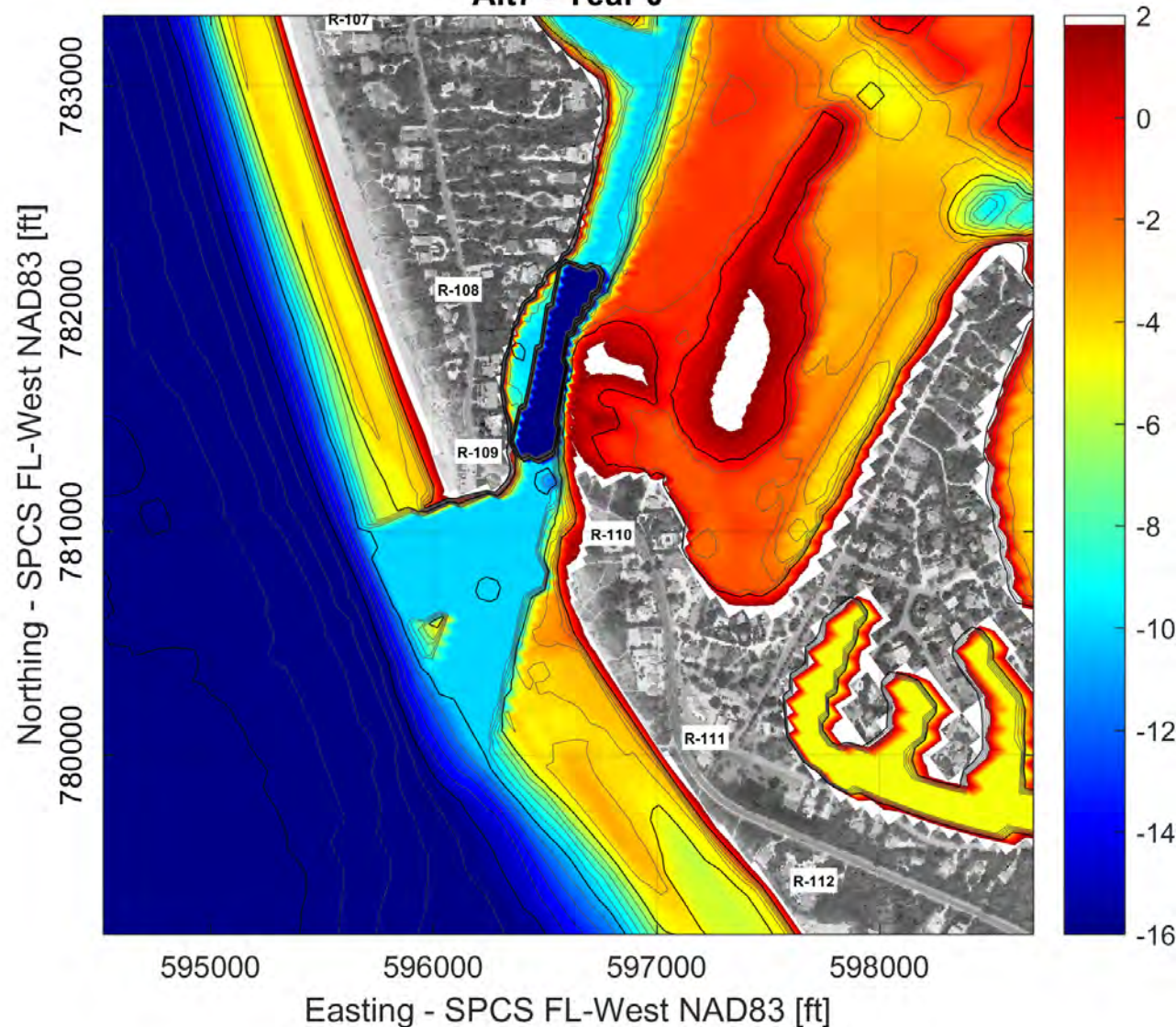
Computed bathymetry [ft NAVD]
Alt6d - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
- Blind Pass jetty: shorten 50-ft
- Blind Pass jetty: lengthen 50-ft
- Beach fill: North end Sanibel
- Beach fill: Captiva placement
- Beach fill: 'ebb shoal enhancement'
- **Beach fill: Nearshore disposal at Sanibel**

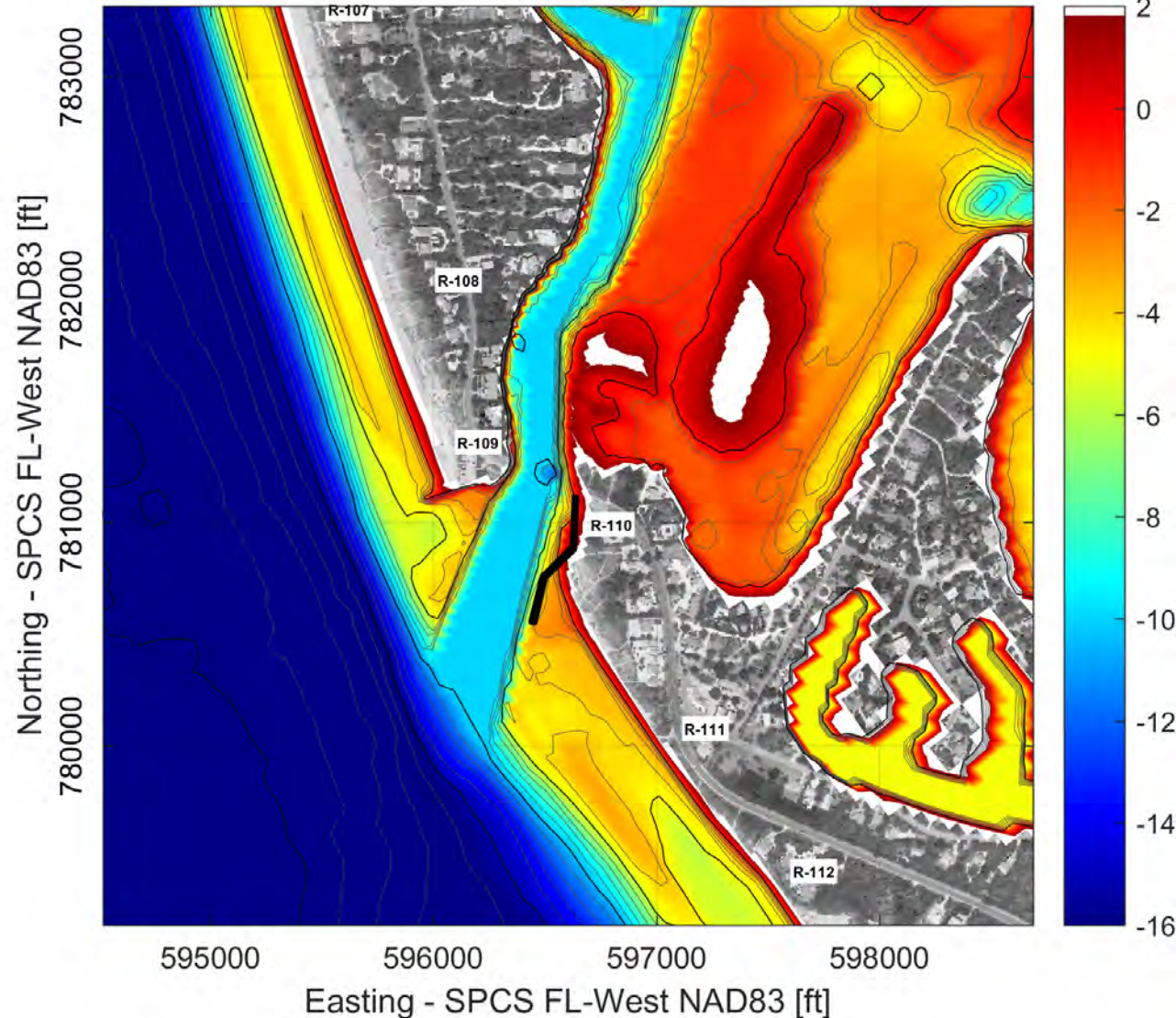
Computed bathymetry [ft NAVD]
Alt7 - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
- Blind Pass jetty: shorten 50-ft
- Blind Pass jetty: lengthen 50-ft
- Beach fill: North end Sanibel
- Beach fill: Captiva placement
- Beach fill: 'ebb shoal enhancement'
- Beach fill: Nearshore disposal at Sanibel
- **Deposition basins**

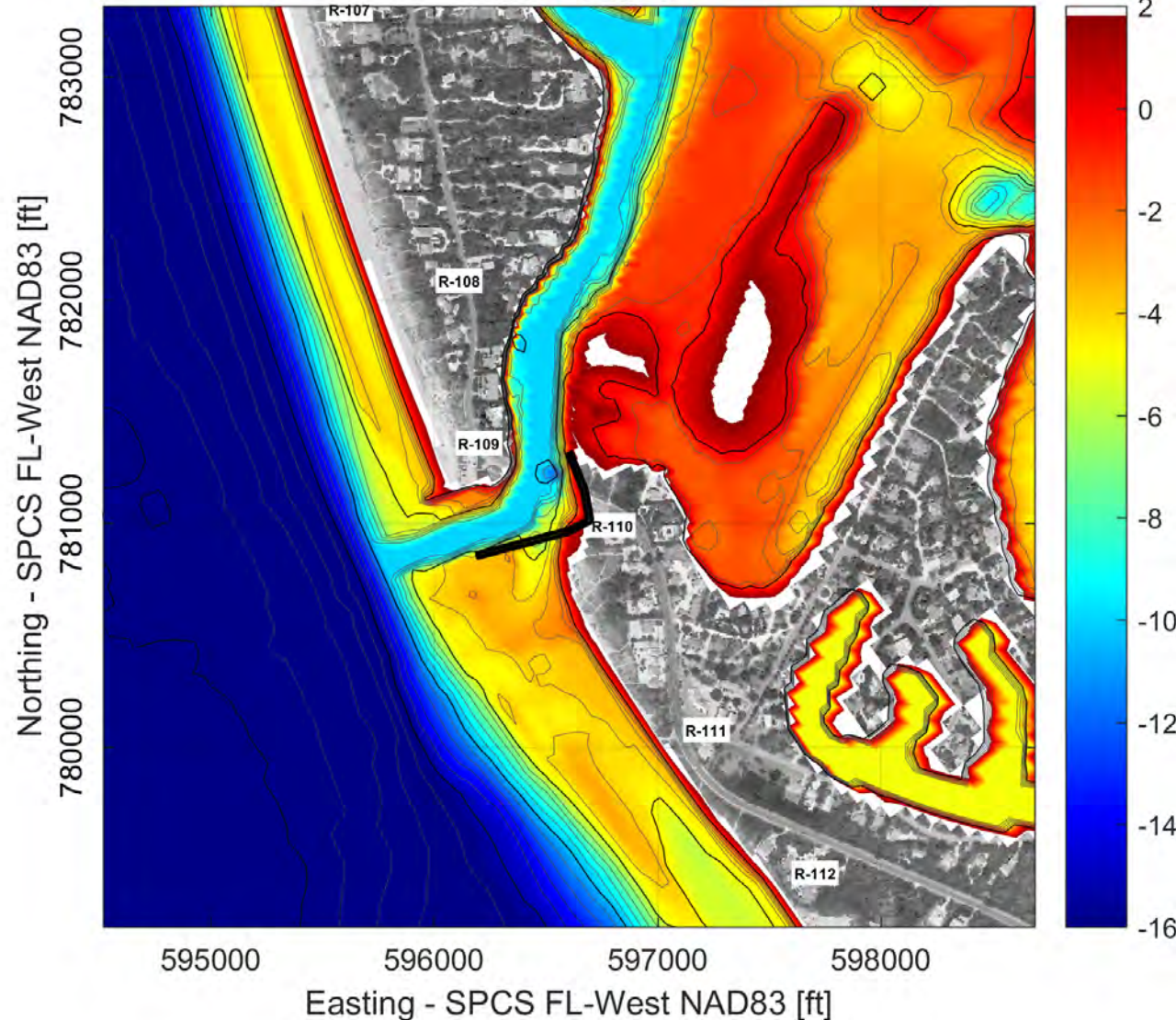
Computed bathymetry [ft NAVD]
Alt8b - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
- Truncated dredge template
- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
- Blind Pass jetty: shorten 50-ft
- Blind Pass jetty: lengthen 50-ft
- Beach fill: North end Sanibel
- Beach fill: Captiva placement
- Beach fill: 'ebb shoal enhancement'
- Beach fill: Nearshore disposal at Sanibel
- Deposition basins
- **Angled structure on Sanibel with permitted dredge template**

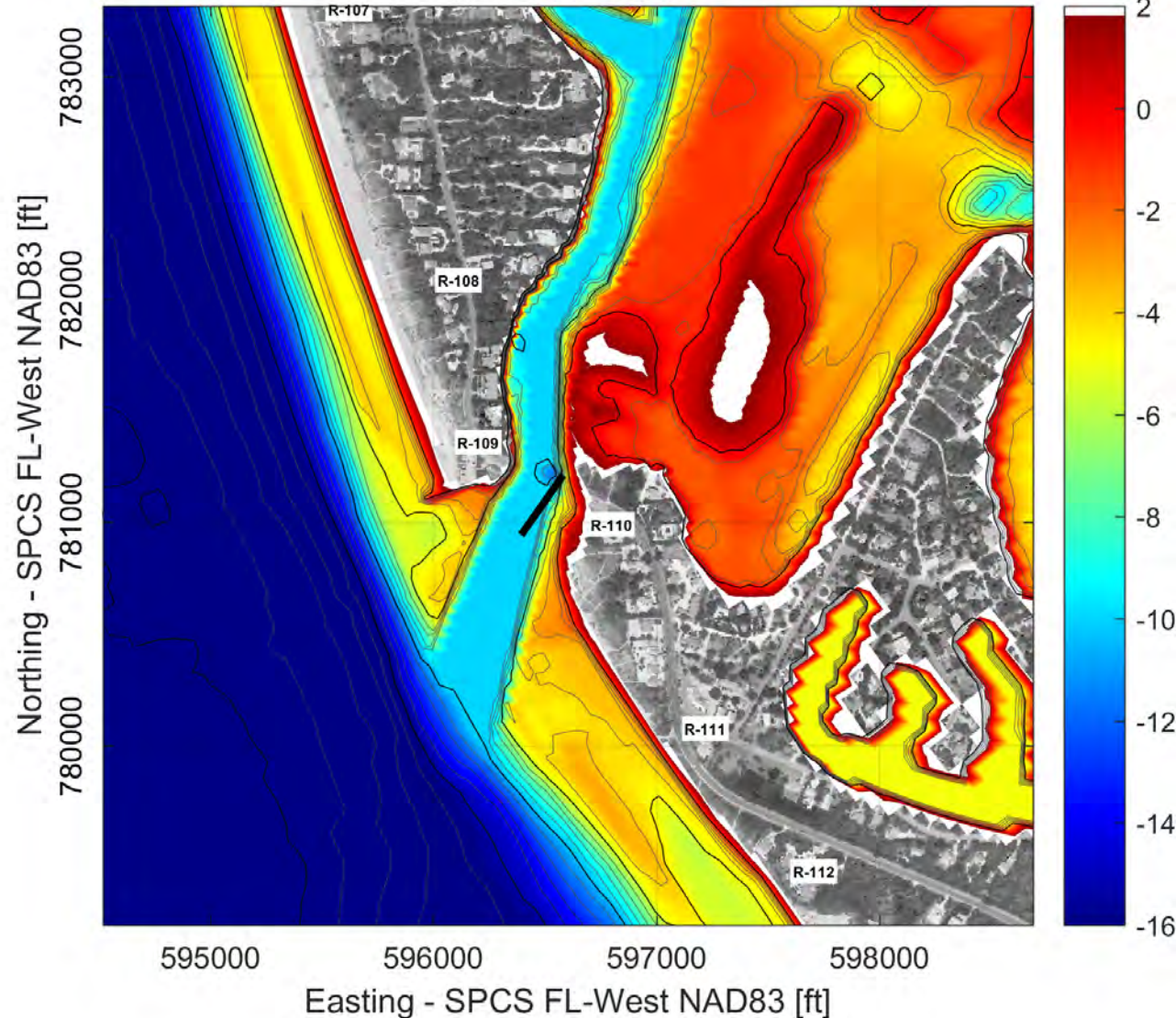
Computed bathymetry [ft NAVD]
Alt8c - Year 0



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- No action
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- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
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- Beach fill: North end Sanibel
- Beach fill: Captiva placement
- Beach fill: 'ebb shoal enhancement'
- Beach fill: Nearshore disposal at Sanibel
- Deposition basins
- Angled structure on Sanibel with permitted dredge template
- **Shore-perp structure on Sanibel with dredging**

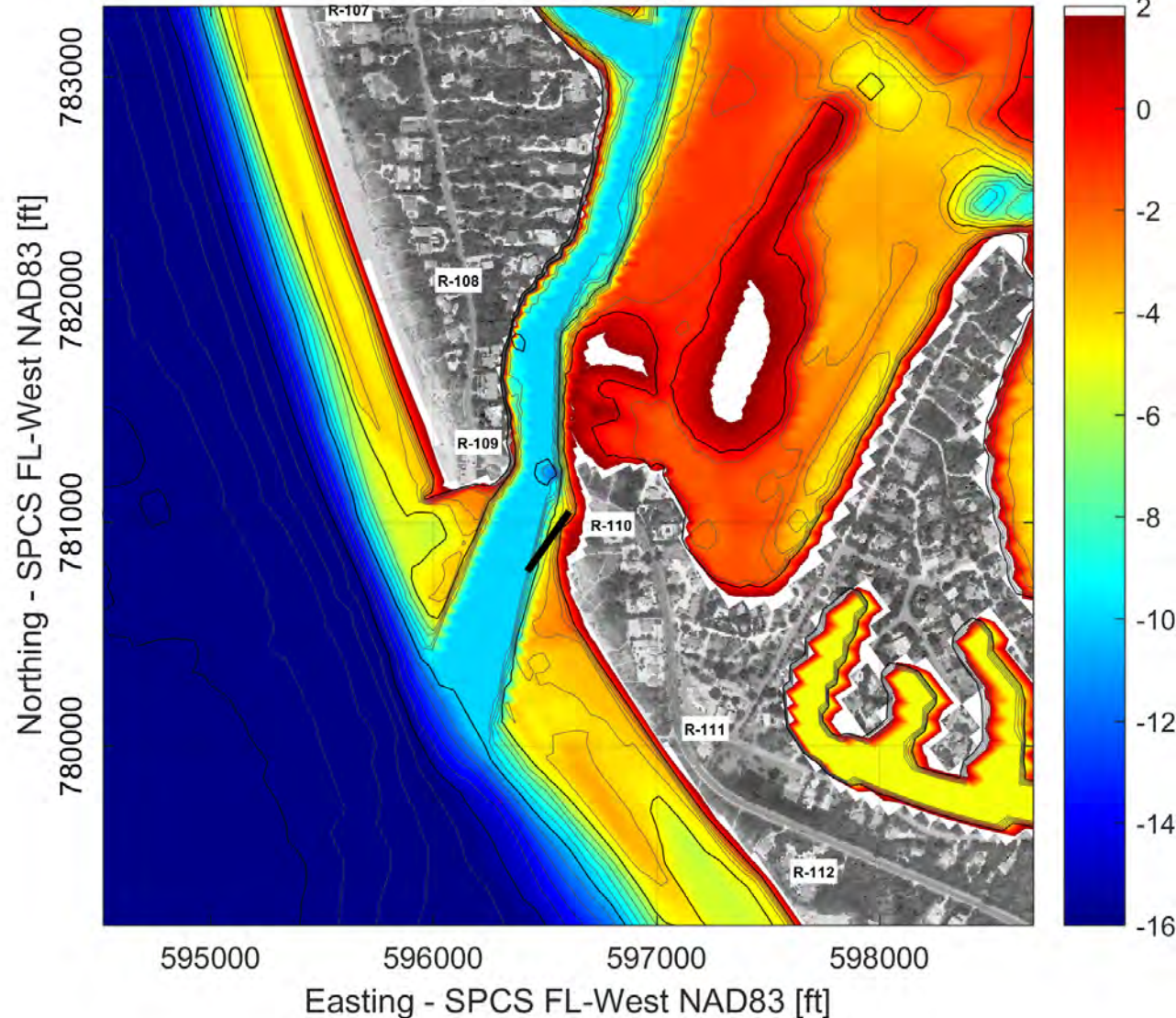
Computed bathymetry [ft NAVD]
Alt8North - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
- Wulfert Channel extension & permitted dredge template
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- Connection to Dinkins Bayou (1995 condition)
- Blind Pass jetty: remove
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- Blind Pass jetty: lengthen 50-ft
- Beach fill: North end Sanibel
- Beach fill: Captiva placement
- Beach fill: 'ebb shoal enhancement'
- Beach fill: Nearshore disposal at Sanibel
- Deposition basins
- Angled structure on Sanibel with permitted dredge template
- Shore-perp structure on Sanibel with dredging
- **Straight structure on Sanibel (north)**

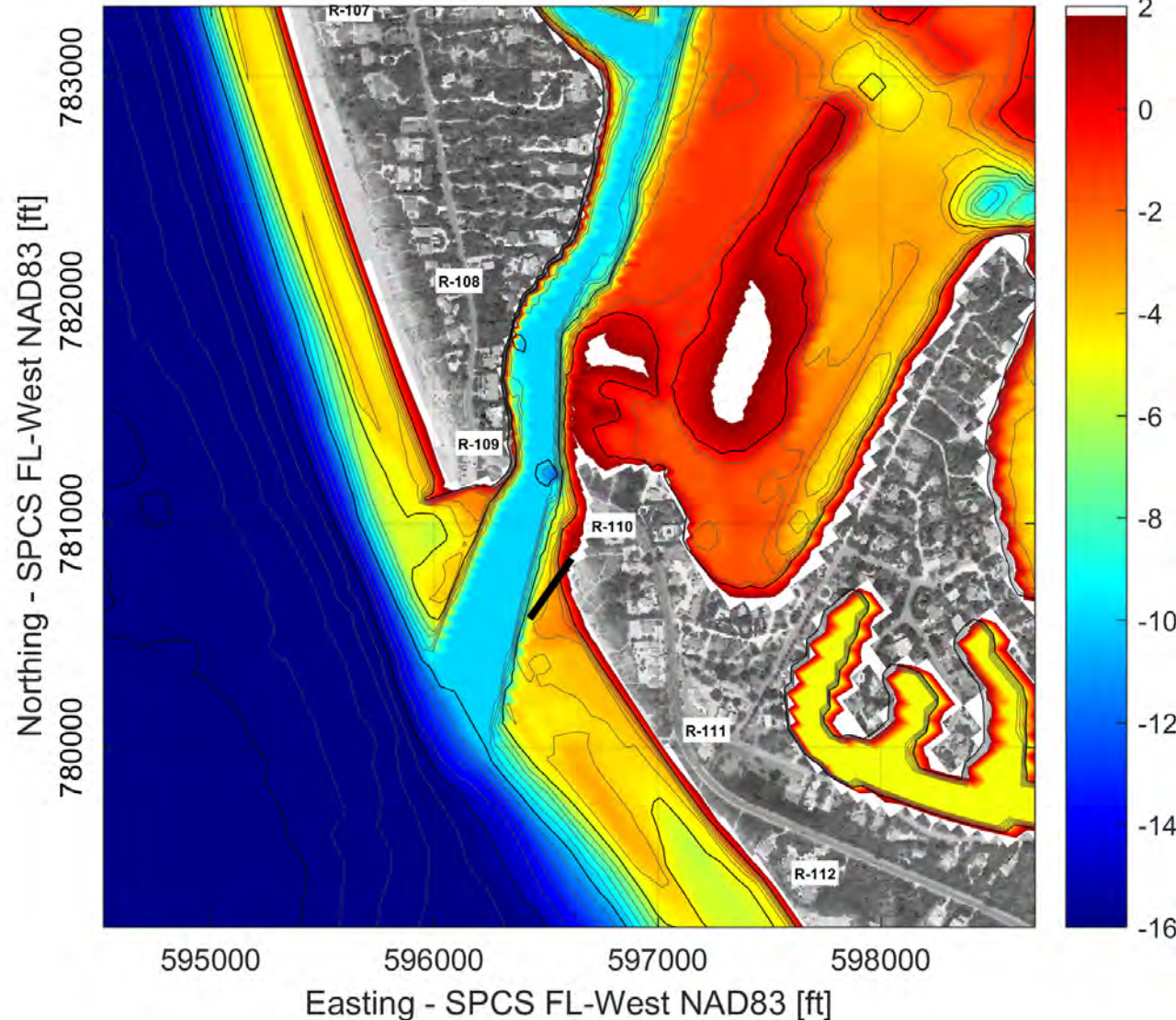
Computed bathymetry [ft NAVD]
Alt8Center - Year 0



PRELIMINARY TESTING

- No action
- Permitted dredge template
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- Blind Pass jetty: remove
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- Beach fill: Captiva placement
- Beach fill: 'ebb shoal enhancement'
- Beach fill: Nearshore disposal at Sanibel
- Deposition basins
- Angled structure on Sanibel with permitted dredge template
- Shore-perp structure on Sanibel with dredging
- Straight structure on Sanibel (north)
- **Straight structure on Sanibel (center)**

Computed bathymetry [ft NAVD]
Alt8South - Year 0



PRELIMINARY TESTING

- No action
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- Connection to Dinkins Bayou (1995 condition)
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- Beach fill: North end Sanibel
- Beach fill: Captiva placement
- Beach fill: 'ebb shoal enhancement'
- Beach fill: Nearshore disposal at Sanibel
- Deposition basins
- Angled structure on Sanibel with permitted dredge template
- Shore-perp structure on Sanibel with dredging
- Straight structure on Sanibel (north)
- Straight structure on Sanibel (center)
- **Straight structure on Sanibel (south)**

- The current inlet maintenance plan is beneficial.
- Dredging though ebb shoal temporarily cuts off bypassing (both directions).
- Back channel connections support channel stability.
- Erosion on Sanibel is related to inlet channel variability.



- Fill placement benefits the beach without a considerable effect on inlet stability.
- Current system is in balance with existing Captiva Island terminal groin.
- Structural installations on Sanibel can offer protection from channel variability.



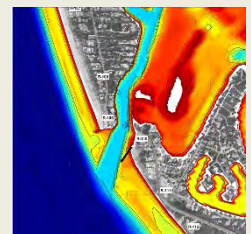
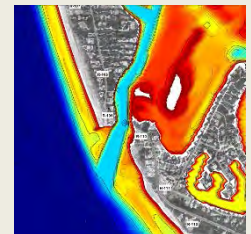
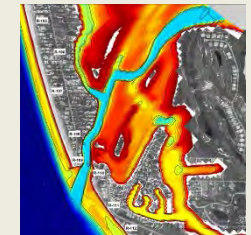
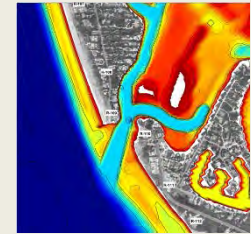
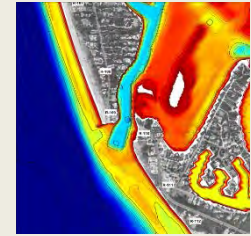
- A combination of alternatives may be needed.

Variability may be addressed with...

- Modifications to dredging template
- Interior connections
- Fill placement protocol
- Structural stabilization



- Bypassing Bar
- Interior Connections
 - Wulfert Channel
 - Sunset Bay
 - Wulfert + Sunset
 - Wulfert + Sunset + extra connections
- Sand Placement
 - Fill to the north
 - Fill to the south
 - Feeder beach
- Terminal Groin on Sanibel (TBD)
 - Length
 - Location



Next Steps

- ❖ Evaluate combined management strategies for consideration
- ❖ Coordination with Technical Advisory Committee
- ❖ Recommendation of management option(s)
- ❖ Study report development



Stakeholder Meeting

Blind Pass Inlet Management Study

Status Update

Thank you



