Navigating Change: The Update to the National Tidal Datum Epoch and Its Implications for Coastal Infrastructure and Community Resilience

2026 Florida Shore & Beach Preservation Association Conference

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National Tidal Datum Epoch Update Introduction

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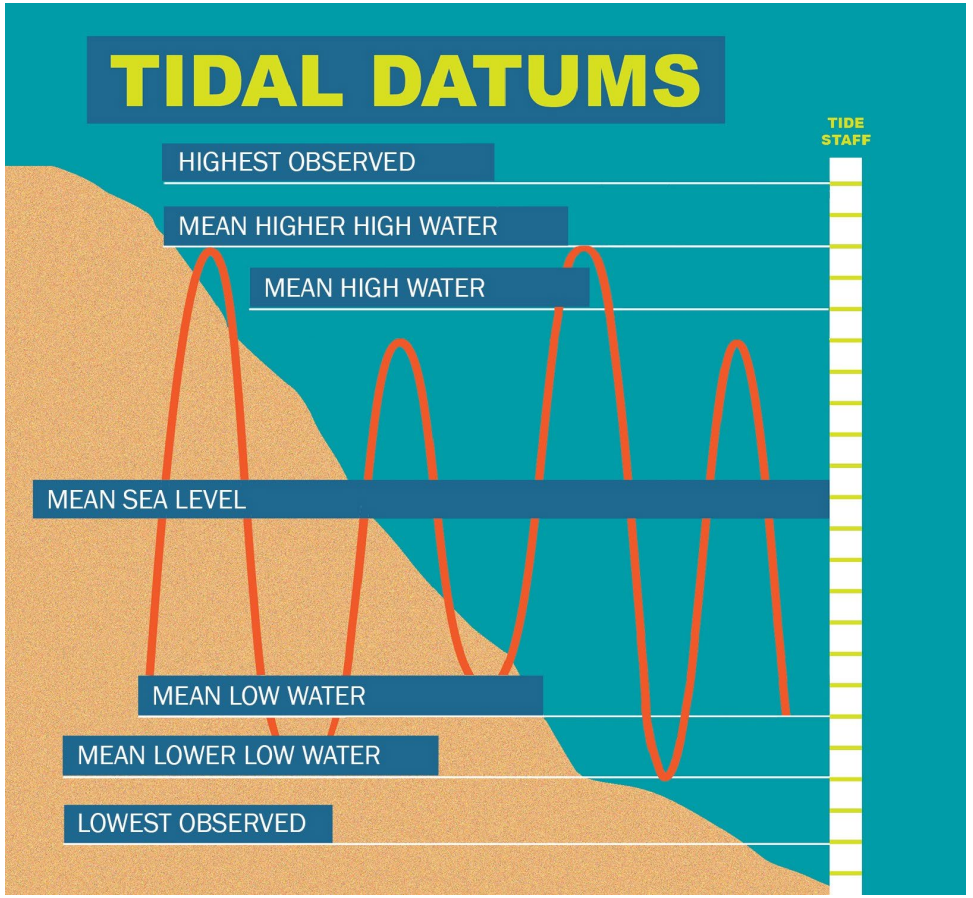
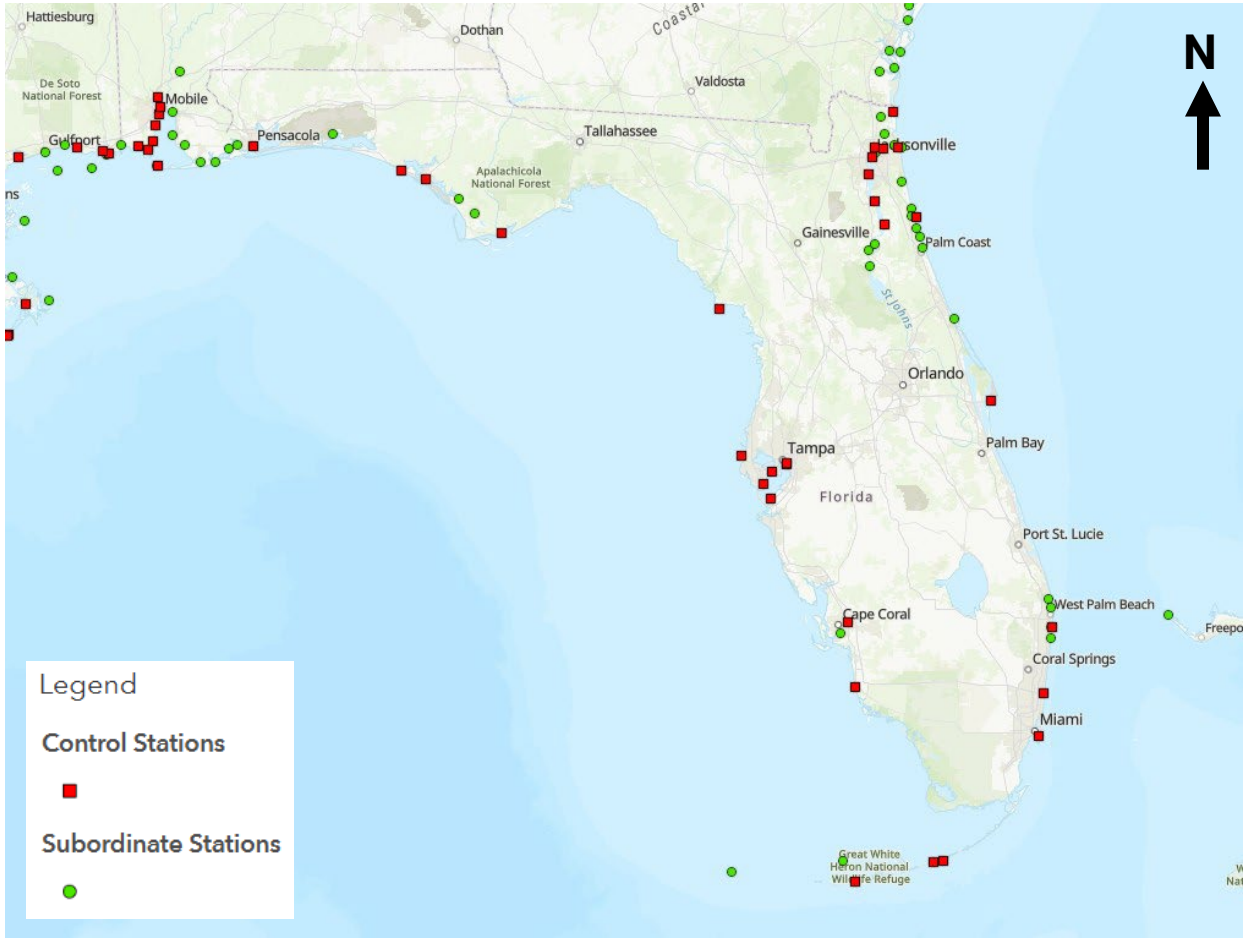
National Tidal Datum Epoch Introduction

- **Tidal Datum:** "*A tidal datum is a standard elevation defined by a certain phase of the tide.*"
- **Tidal Datum Epoch:** *"a 19-year time period established by the National Ocean Service for collecting observations on water levels and calculating tidal datum values."*

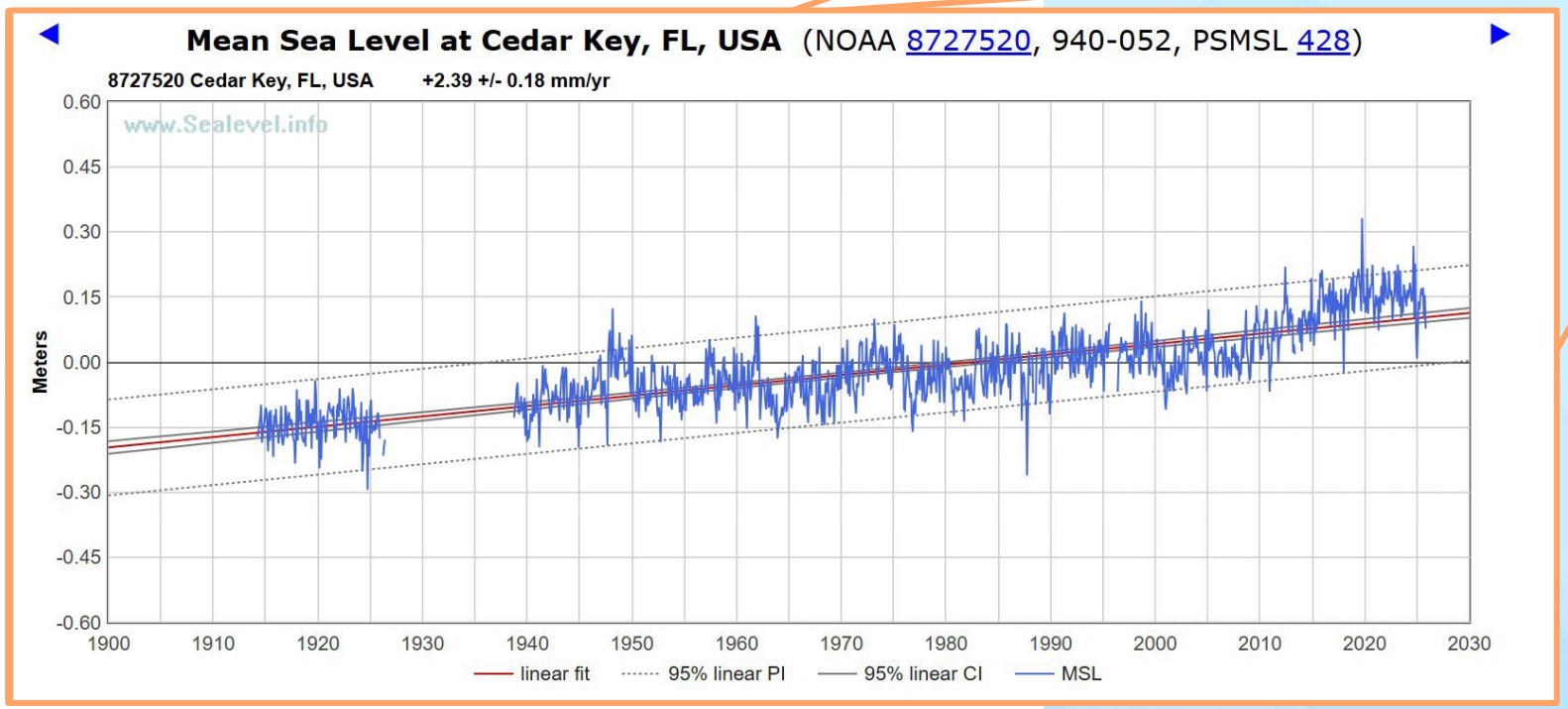


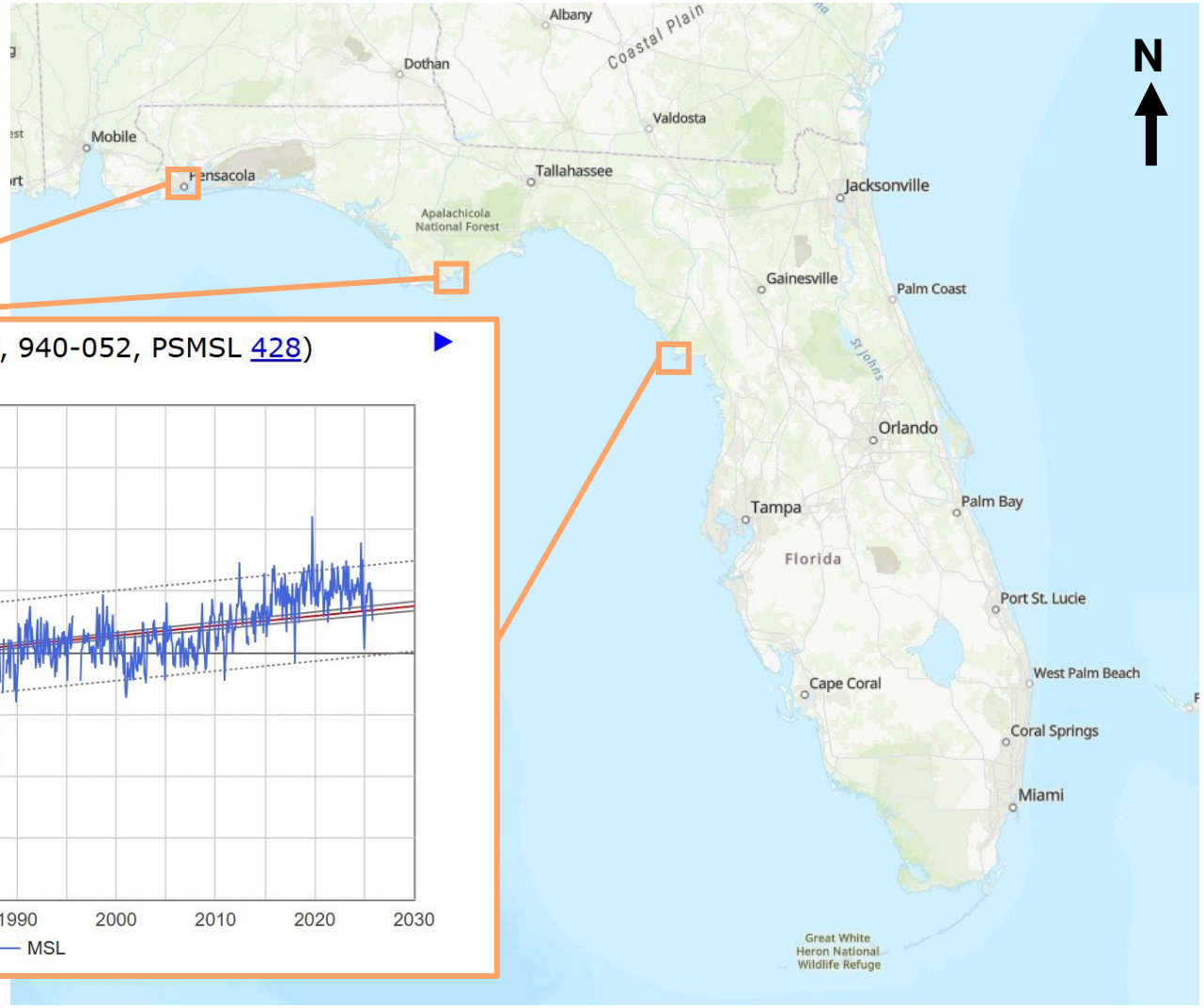
National Tidal Datum Epoch Introduction

- Control stations are long-term, continuously operating tide stations.
- In Florida, there are 57 NOAA Water Level Control and Subordinate Stations.
- Recorded data is used as the baseline for the full 19-year Period of the NTDE.
- The 19-year period represents a full Metonic cycle.

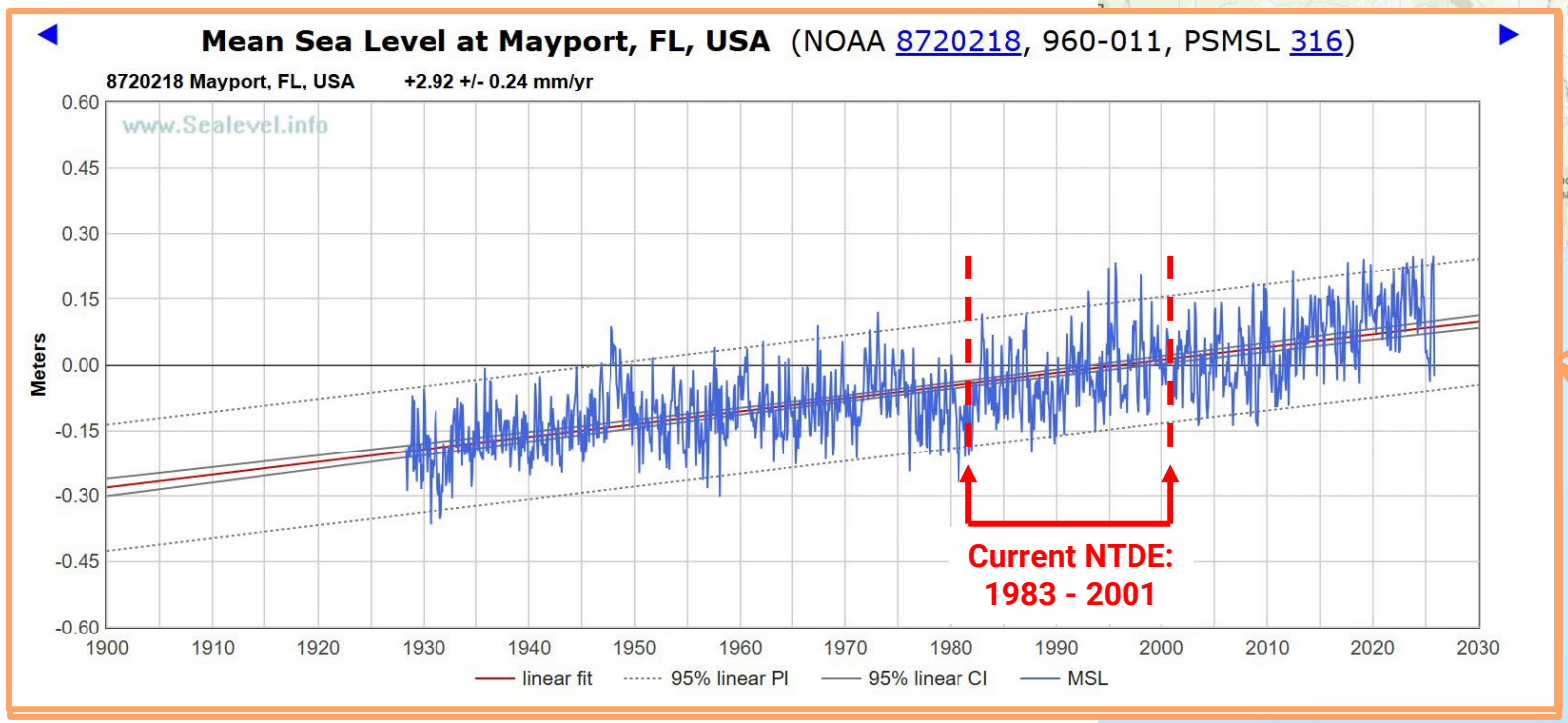


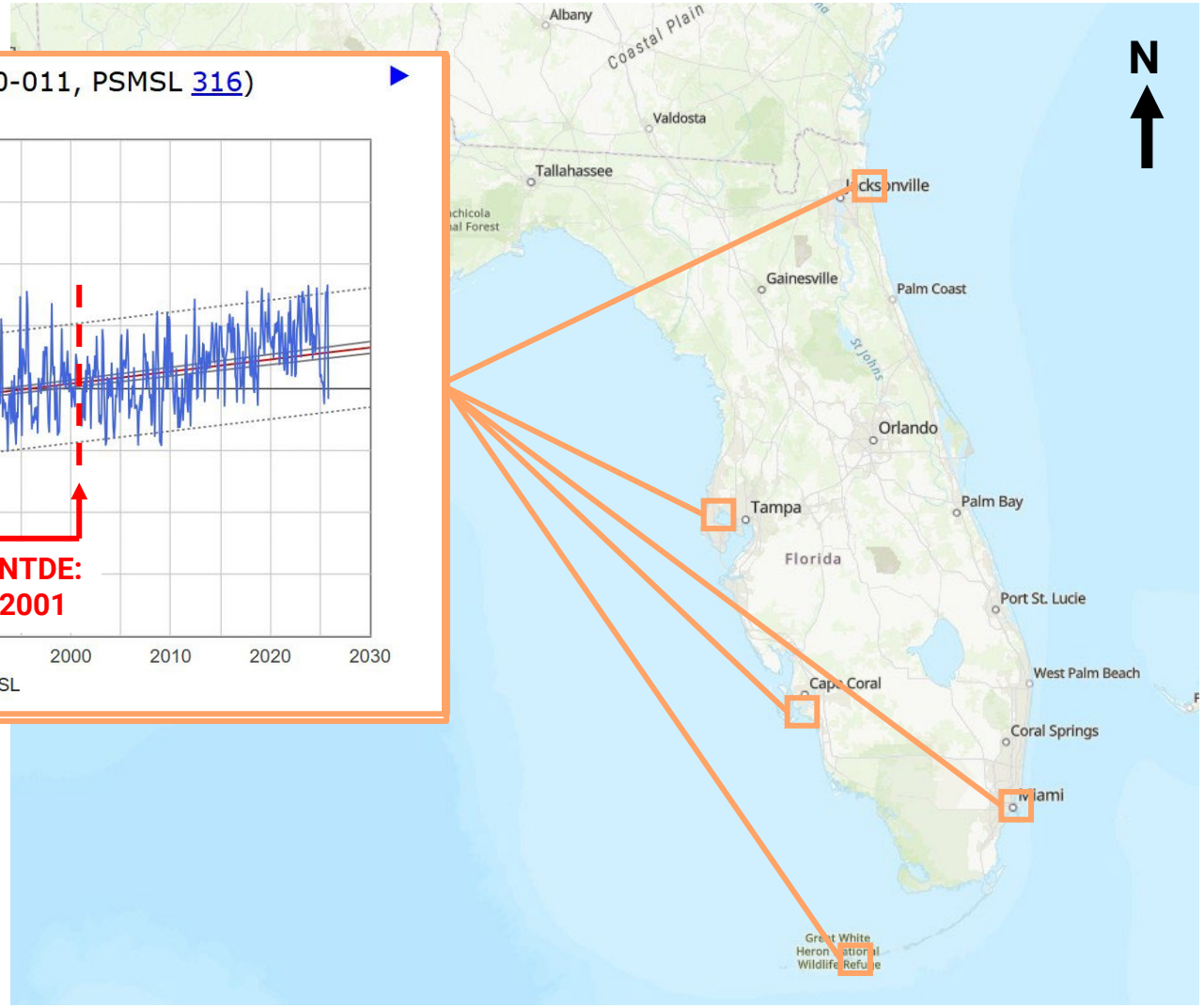
NOAA Tide Station Control Points MSL Change





NOAA Tide Station Control Points MSL Change





National Tidal Datum Epoch MSL Change

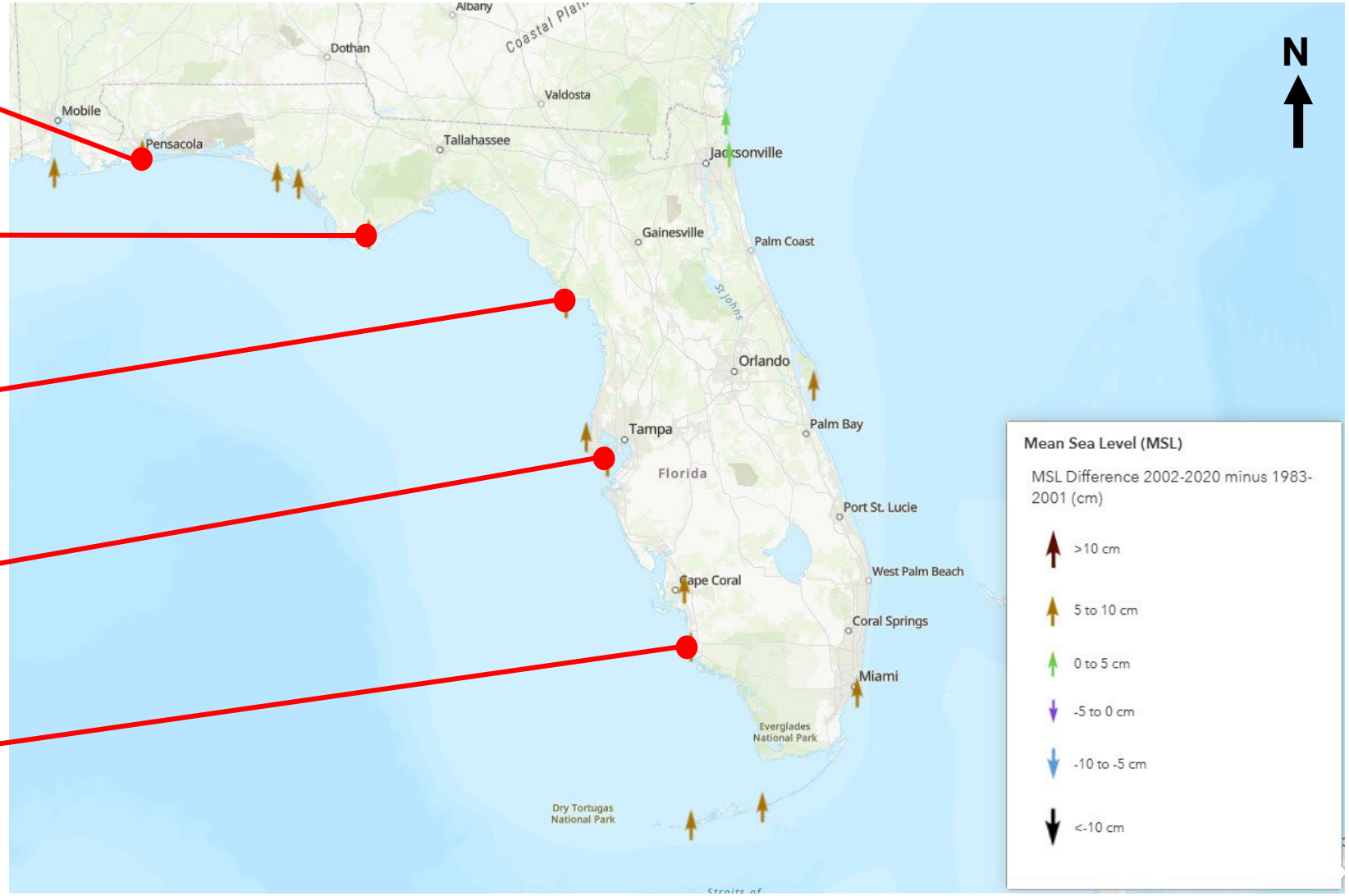
*Pensacola: **+0.28'***

*Apalachicola: **+0.22'***

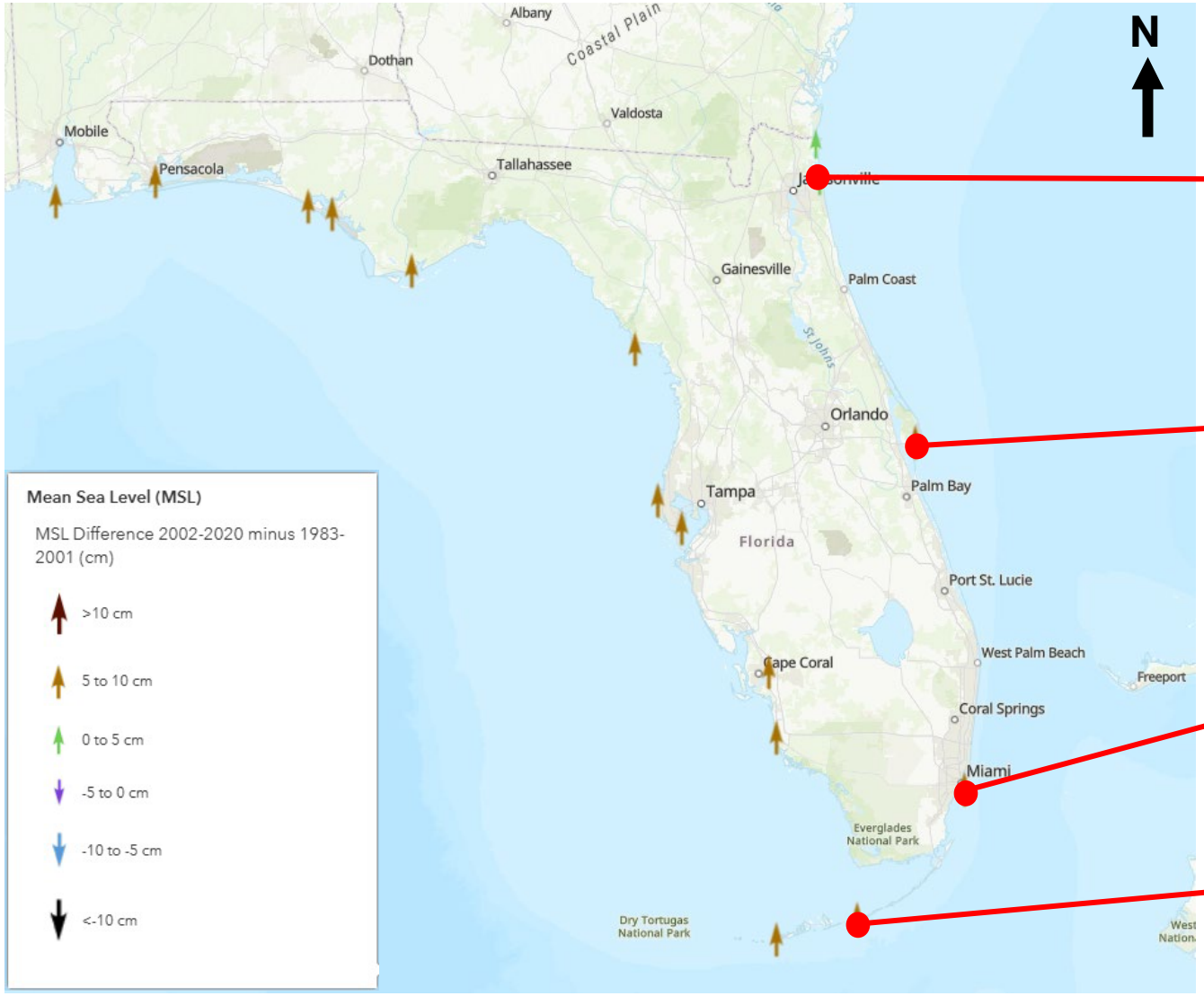
*Cedar Key: **+0.24'***

*St. Petersburg: **+0.24'***

*Naples: **+0.25'***



National Tidal Datum Epoch MSL Change



Mayport: ***+0.15'***

Port Canaveral: ***+0.17'***

Miami: ***+0.23'***

Vaca Key: ***+0.28'***

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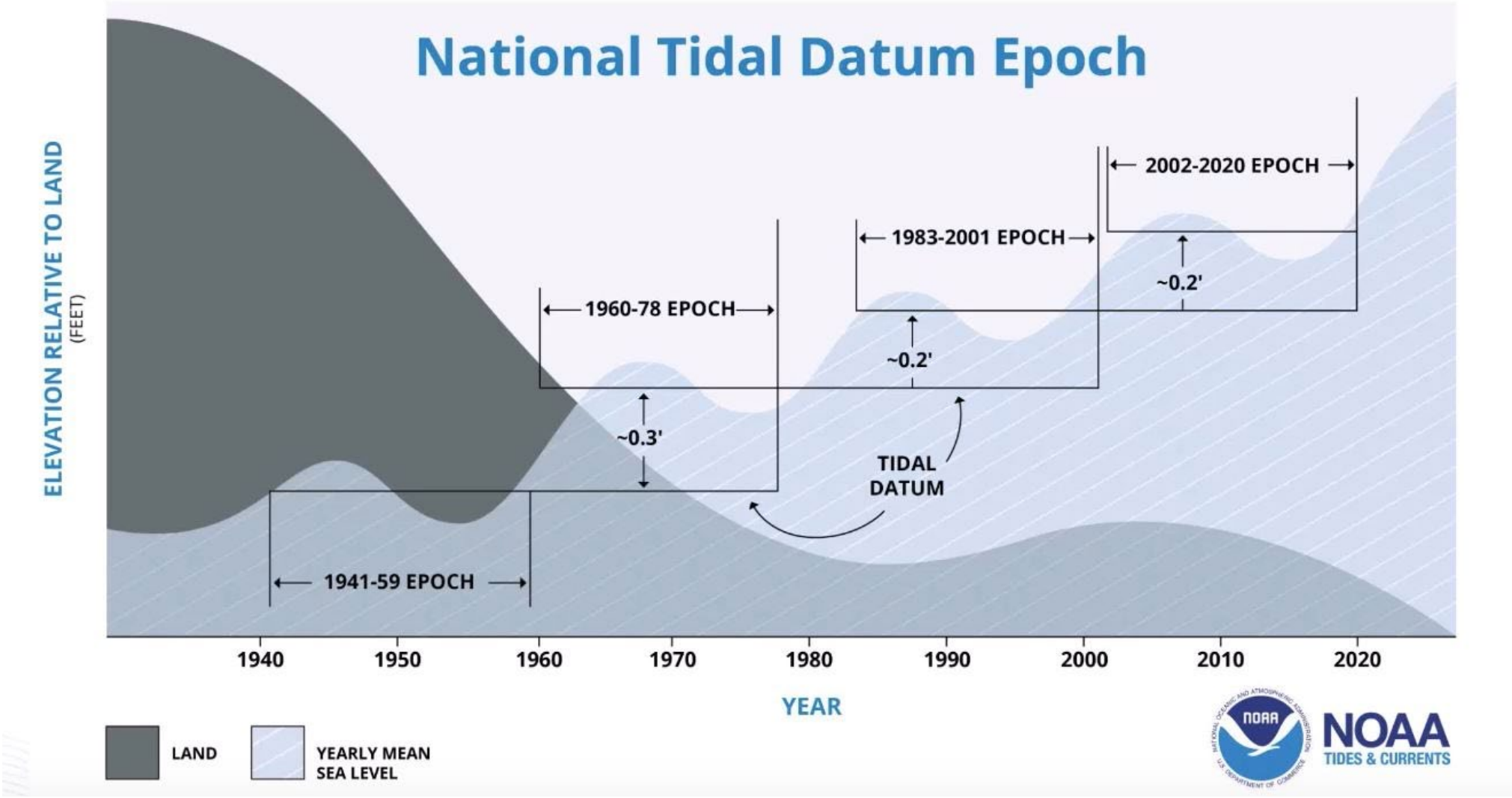
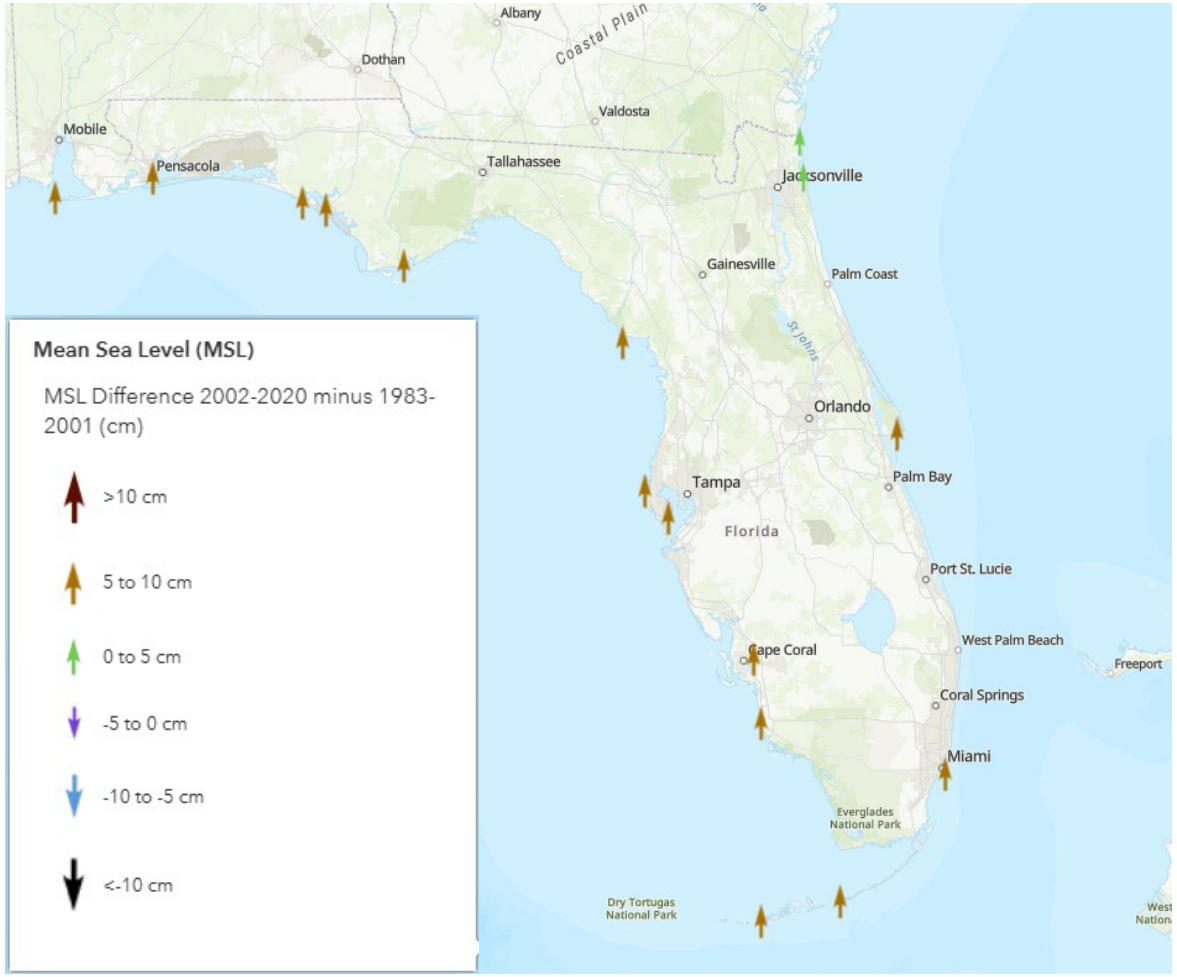
MSL Change & NTDE



National Tidal Datum Epoch Impact Areas

- All Florida gauges observed an increase in MSL height from 2001 to 2020.
- Amount of change in MSL varies by location along Florida's coast.
- Some of the largest changes occurring in the Pensacola area.
- Some of the smallest changes occurring around Mayport.



NTDE Update
Stakeholder Impact

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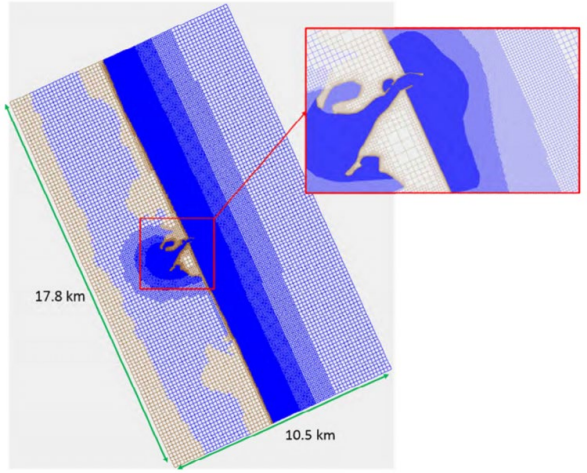
MSL Change & NTDE Datum Change

Stakeholder Impact

- Potential Impacts of the NTDE Update:
  - Coastal modeling.
  - Regulatory agency jurisdictional areas.
  - Design criteria for coastal structures.
  - Sediment sampling.

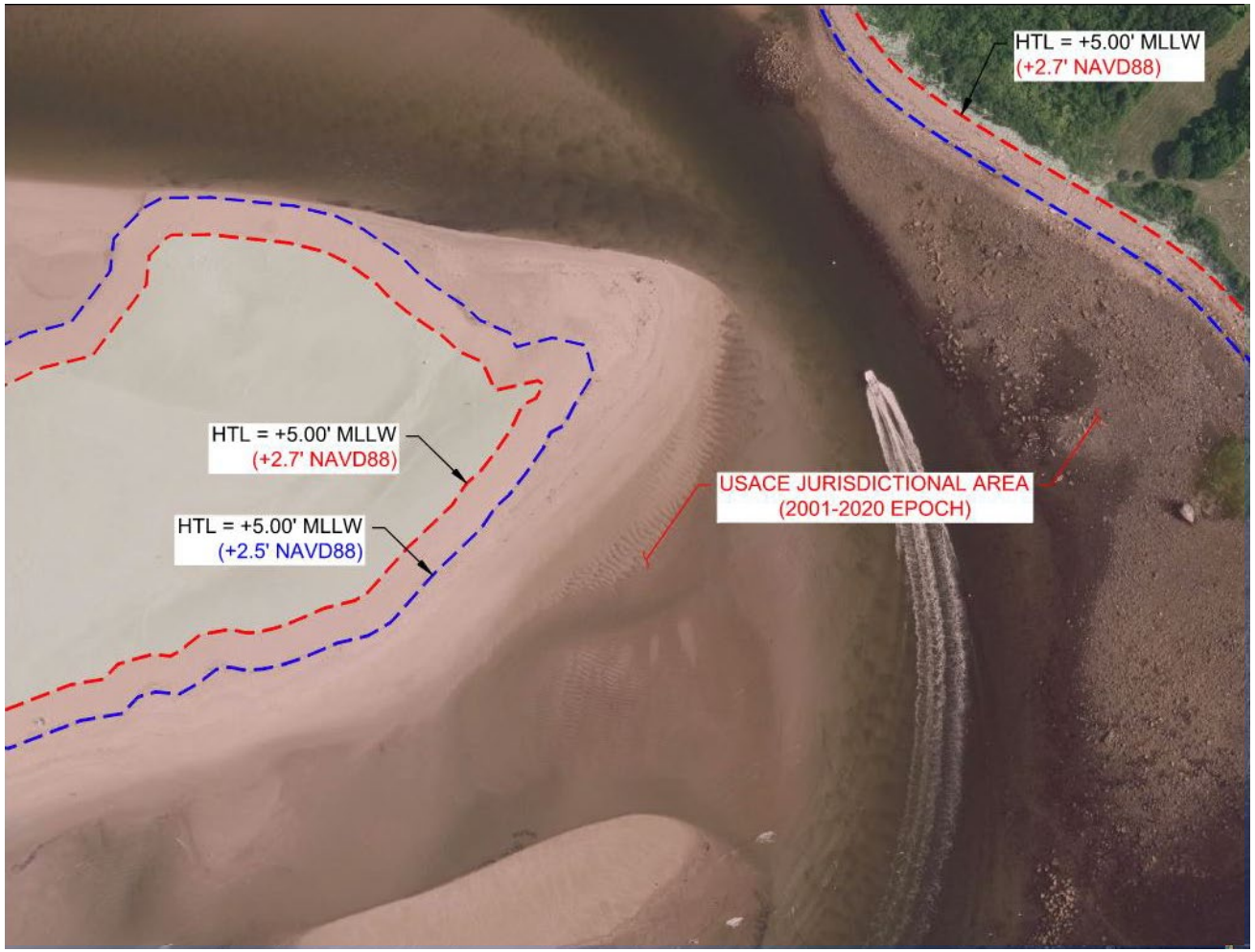


Stakeholder Impact

- Coastal Modeling
  - Shifts baseline water levels (MSL, MHHW, etc.).
  - Modified design level thresholds tied to tidal datums.
  - Small changes in input can have sizeable change on a model's output.

Stakeholder Impact

- Regulatory Area Jurisdiction
  - Many federal & state regulatory agencies jurisdictional boundaries are defined by AHTL or MHW.
  - The National Tidal Datum Epoch Update will impact where these tidal benchmarks fall on land.
  - For most of Florida, expect a slight increase in federal & state jurisdictional boundary.

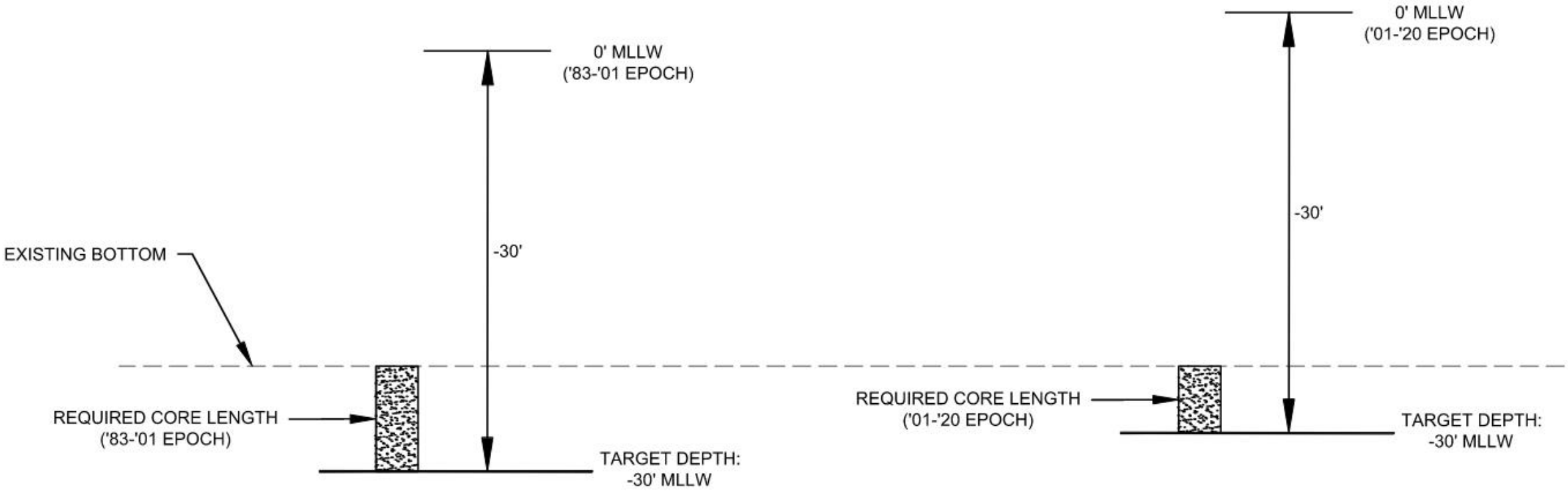


Stakeholder Impact

- Coastal Structures
  - Design criteria of coastal structures could be impacted by NTDE update.
  - Vertical reference points used to define elevations of existing structural features could change.
  - Structures currently in the design phase should be prepared for changes to tidal datum elevations.

Stakeholder Impact

- Sediment Sampling



Conclusion

Questions & Answers

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Appendix Slides

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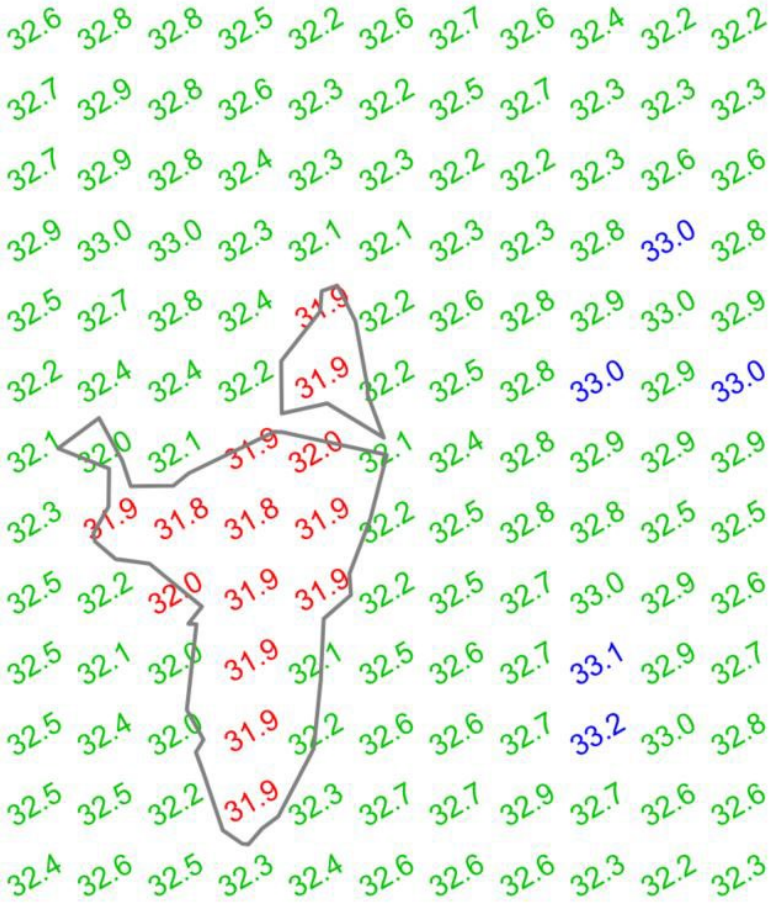
Stakeholder Impact

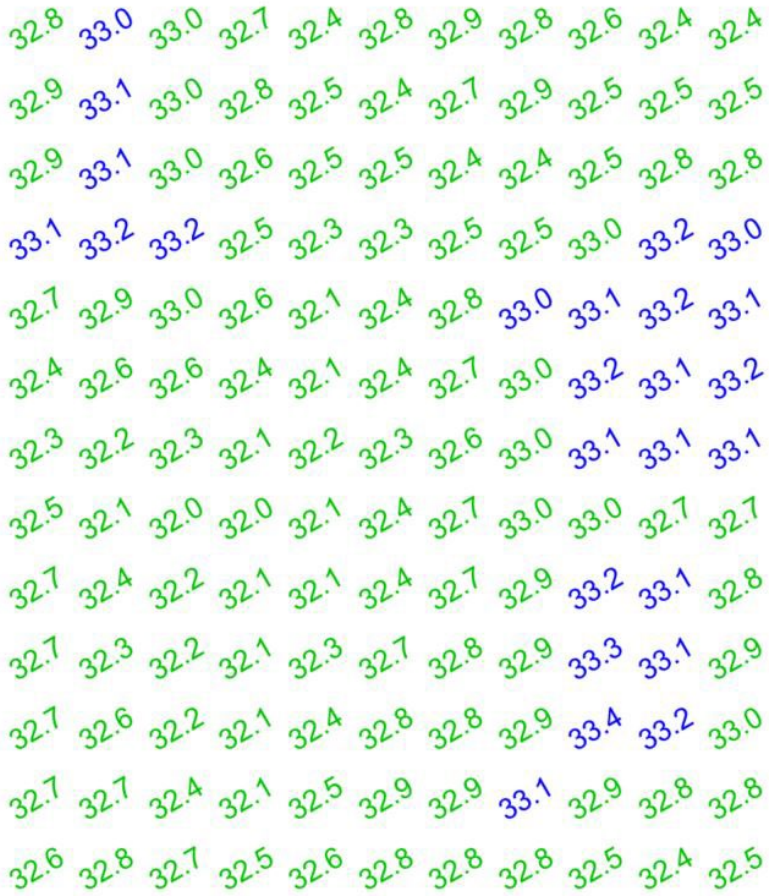
Soundings in MLLW
(1983-2001 Epoch)



< 32.00
32.00 - 32.99
>= 33.00

+0.2’ shift in MSL
from previous Epoch

Soundings in MLLW
(2001-2020 Epoch)



National Tidal Datum Epoch Proposed MSL Change

Portland, ME: ***+0.17'***

Boston, MA: ***+0.27'***

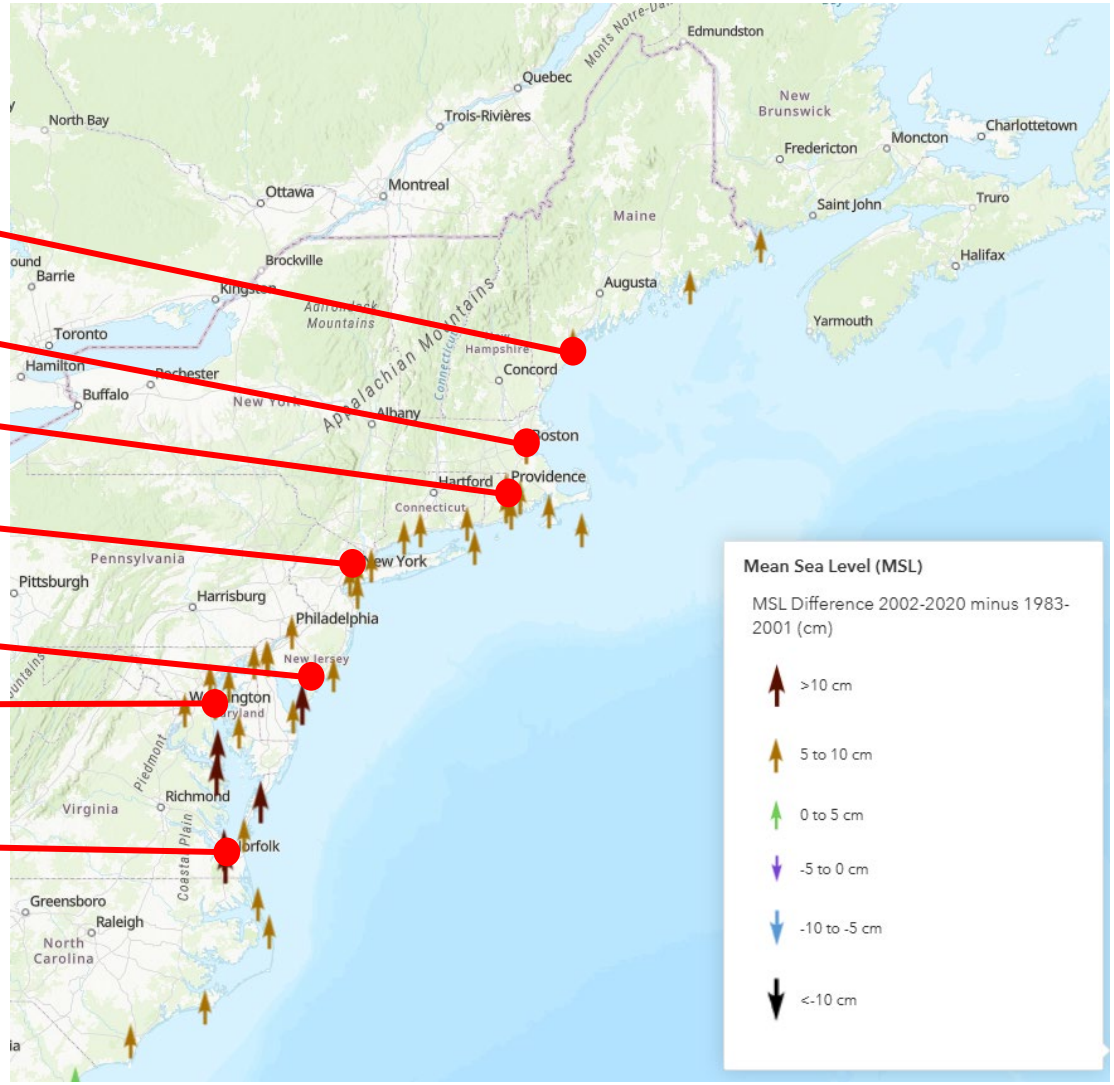
Providence, RI: ***+0.22'***

New York City: ***+0.24'***

Cape May, NJ: ***+0.33'***

Baltimore, MD: ***+0.25'***

Norfolk, VA: ***+0.36'***



National Tidal Datum Epoch MSL Change

Duck, NC: ***+0.28'***

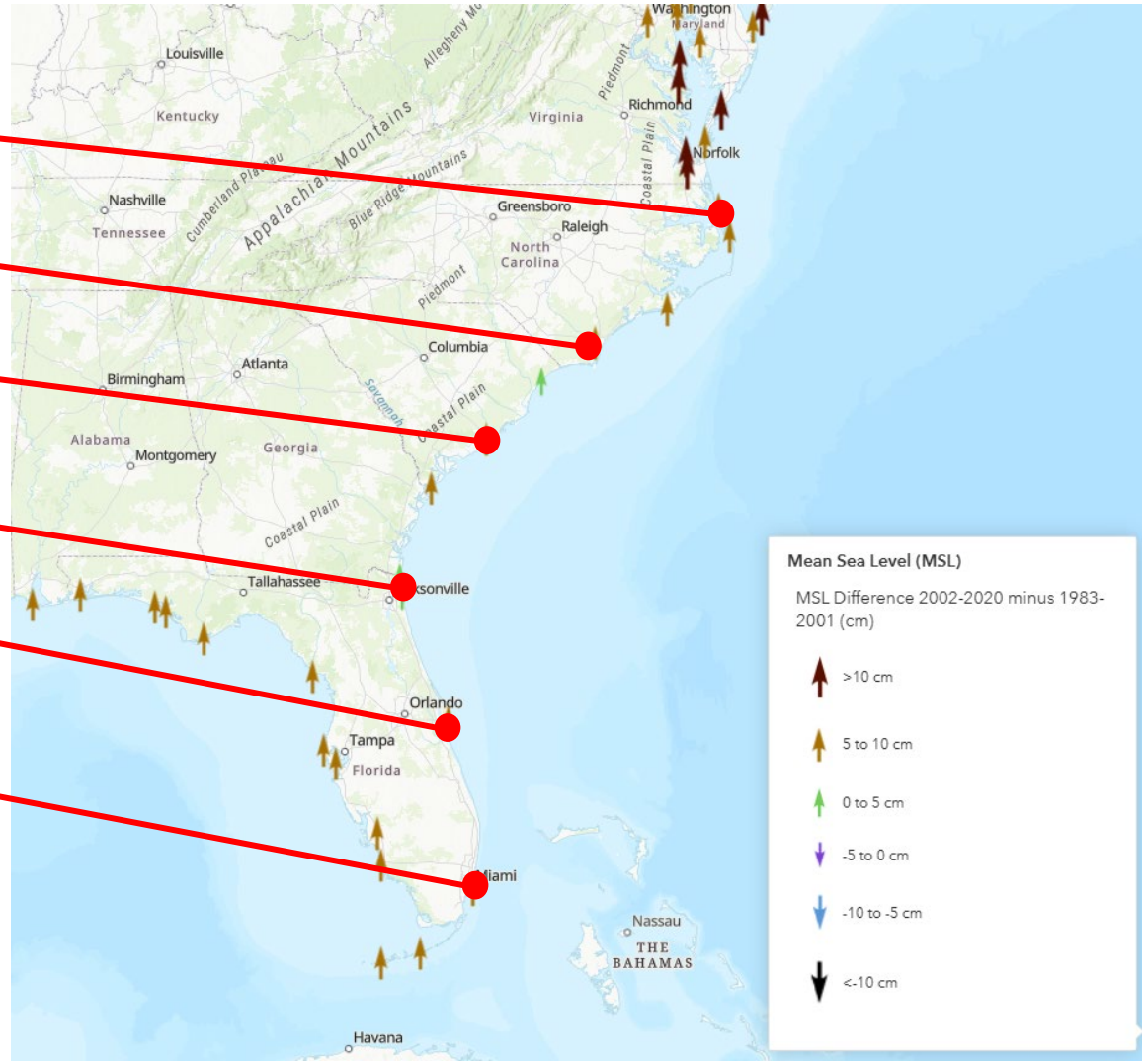
Wilmington, NC: ***+0.20'***

Charleston, SC: ***+0.24'***

Mayport, FL: ***+0.15'***

Port Canaveral, FL: ***+0.17'***

Miami, FL: ***+0.23'***



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