

St. Joseph Sound/Clearwater Harbor Historic Tidal Circulation Changes and Recent Solutions



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St. Joseph Sound/Clearwater Harbor Workshop
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Little Pass, Big Pass, and...

the old switcher-oo!



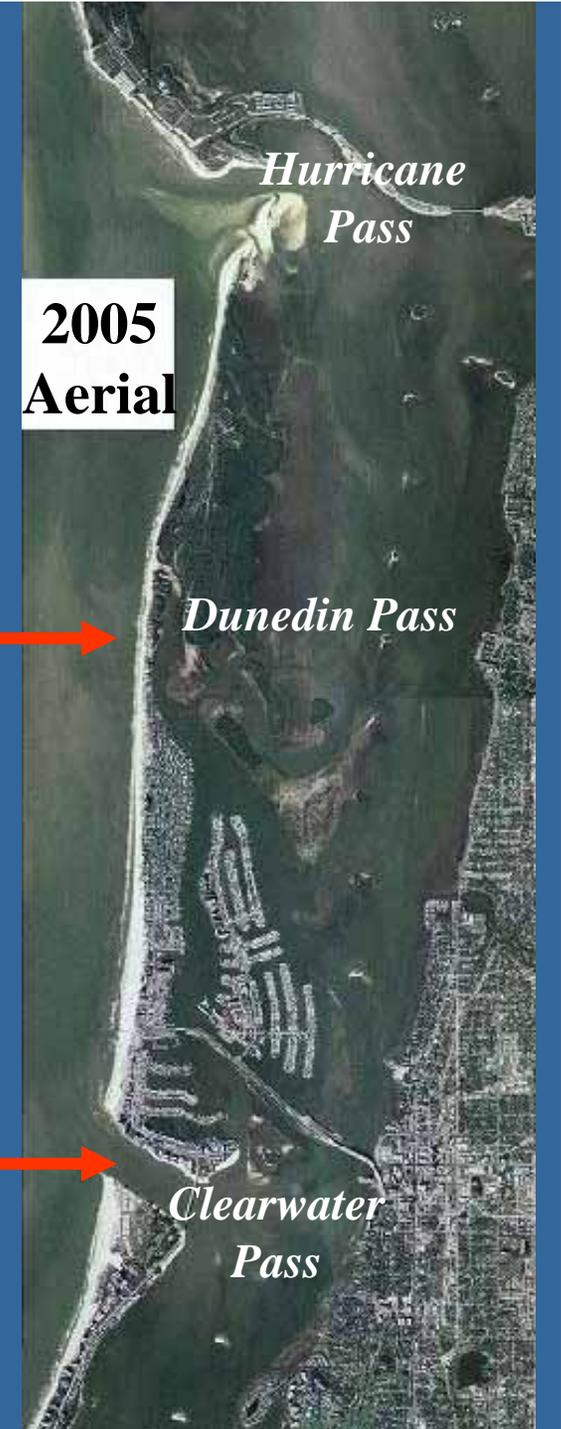
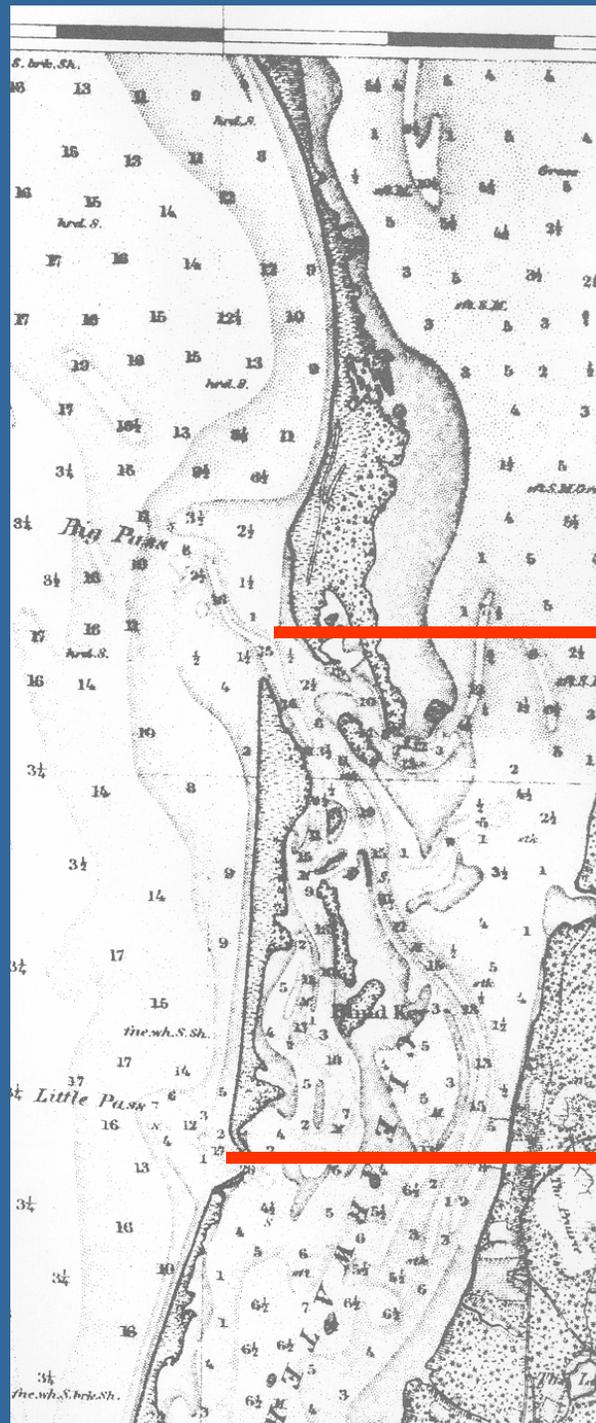
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**1879
Coast Chart
No. 177
U.S. Coast &
Geodetic
Survey**

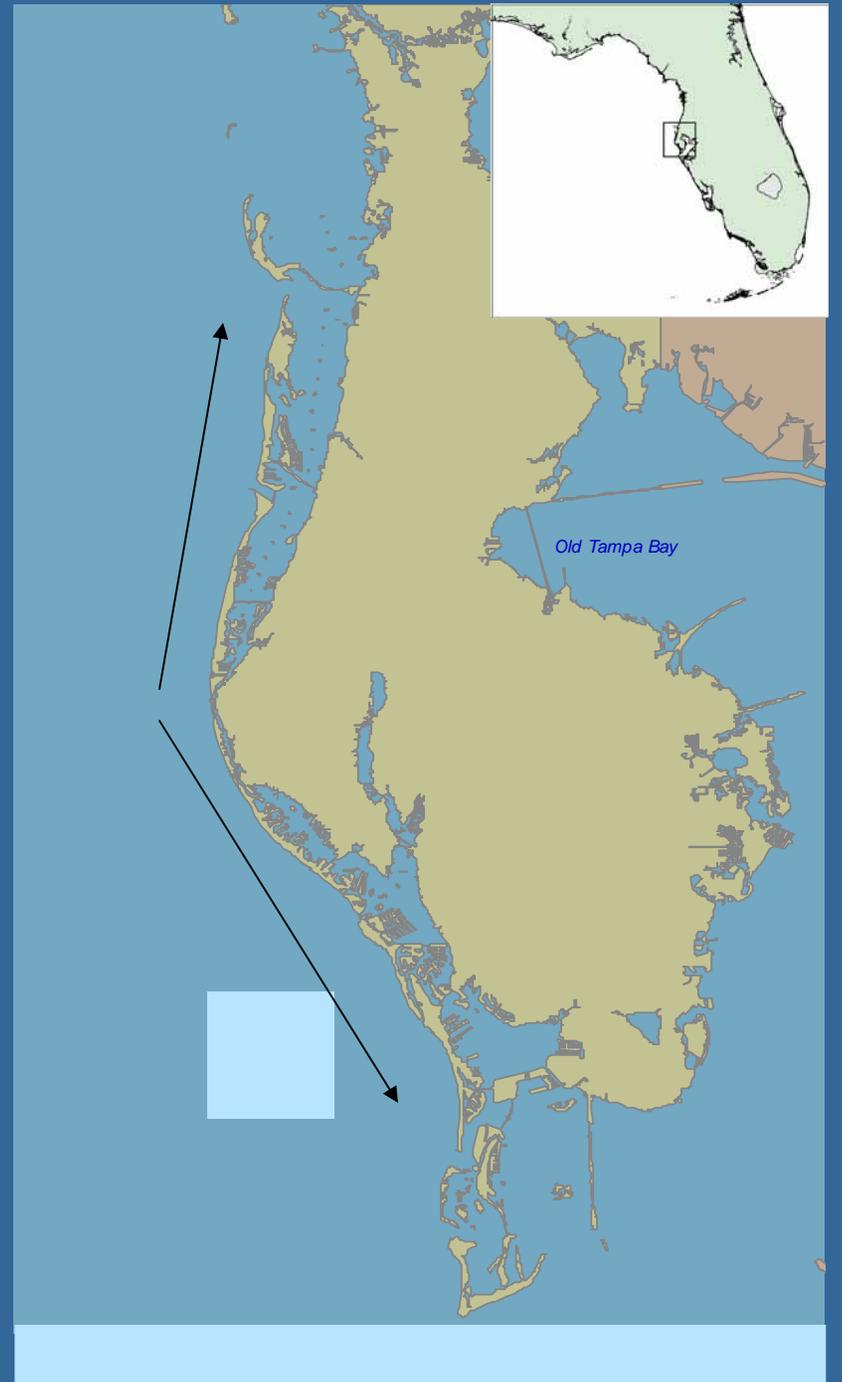


Outline

- **Background**
- **Tidal circulation changes due to:**
 - Hurricane impacts
 - Dredging (ICW, causeways, fingers)
- **Barrier island & inlet changes**
- **Modern coastal management**
- **Summary**

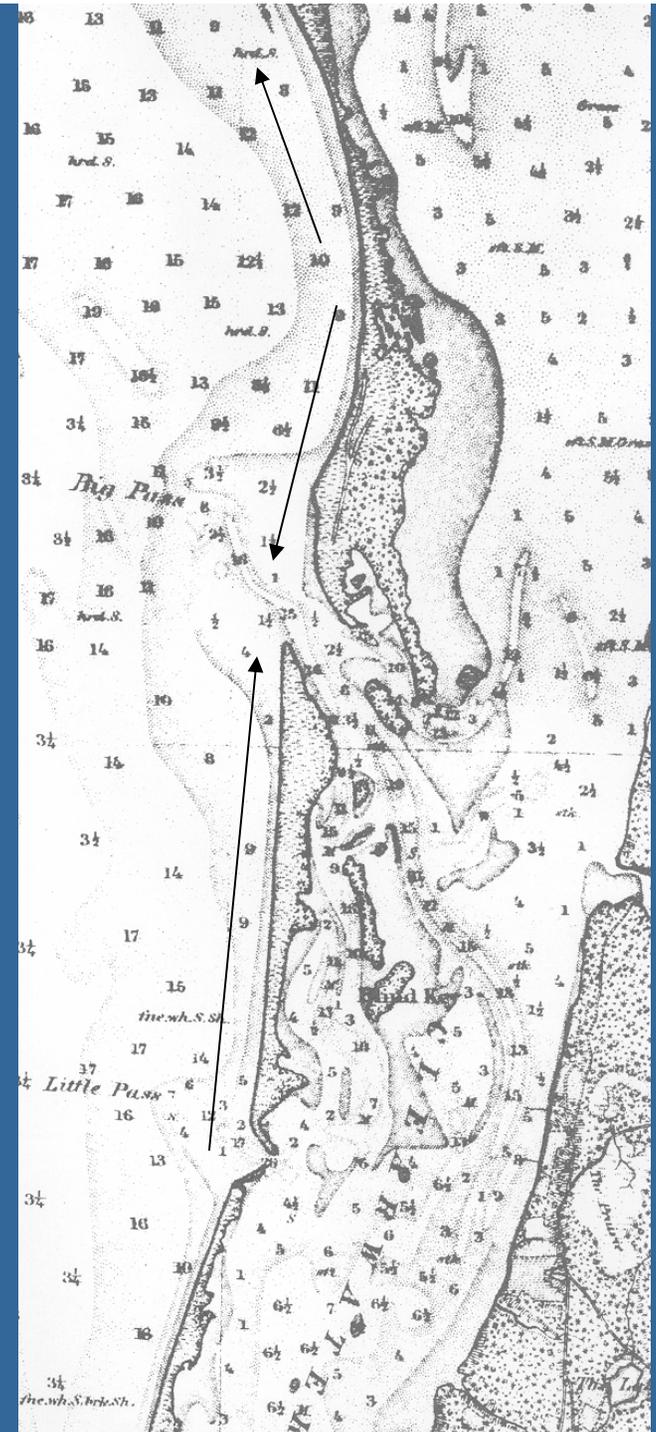
Background

- Geologic setting
- Low energy coast
- Longshore sediment transport



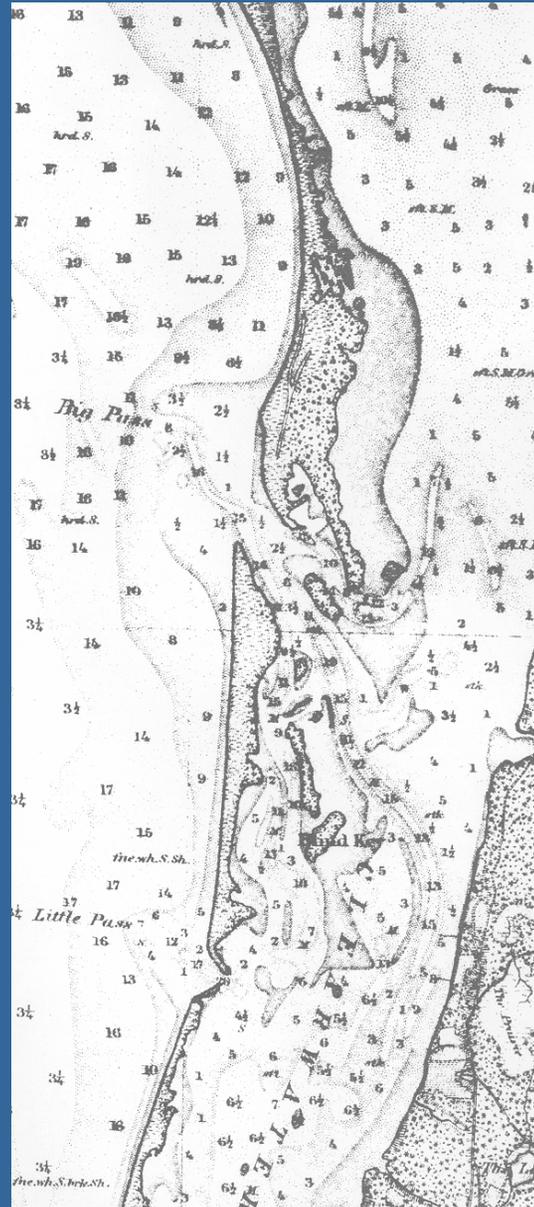
Natural Tidal Circulation Changes

- Longshore sediment transport
- Hurricanes
 - 1848: Little Pass
 - 1921: Hurricane Pass
- Multiple inlet system



Circulation Changes 1926

- 1921 Hurricane
- Multiple inlets
- Dredging
 - Causeway Construction
 - Finger canals



Circulation Changes 1965



Tidal Circulation Changes



Barrier Island/Inlet Changes Natural and Human

- **Honeymoon Island**
- **Caladesi Island & Dunedin Pass**
- **Clearwater Pass**

Honeymoon Island Modifications

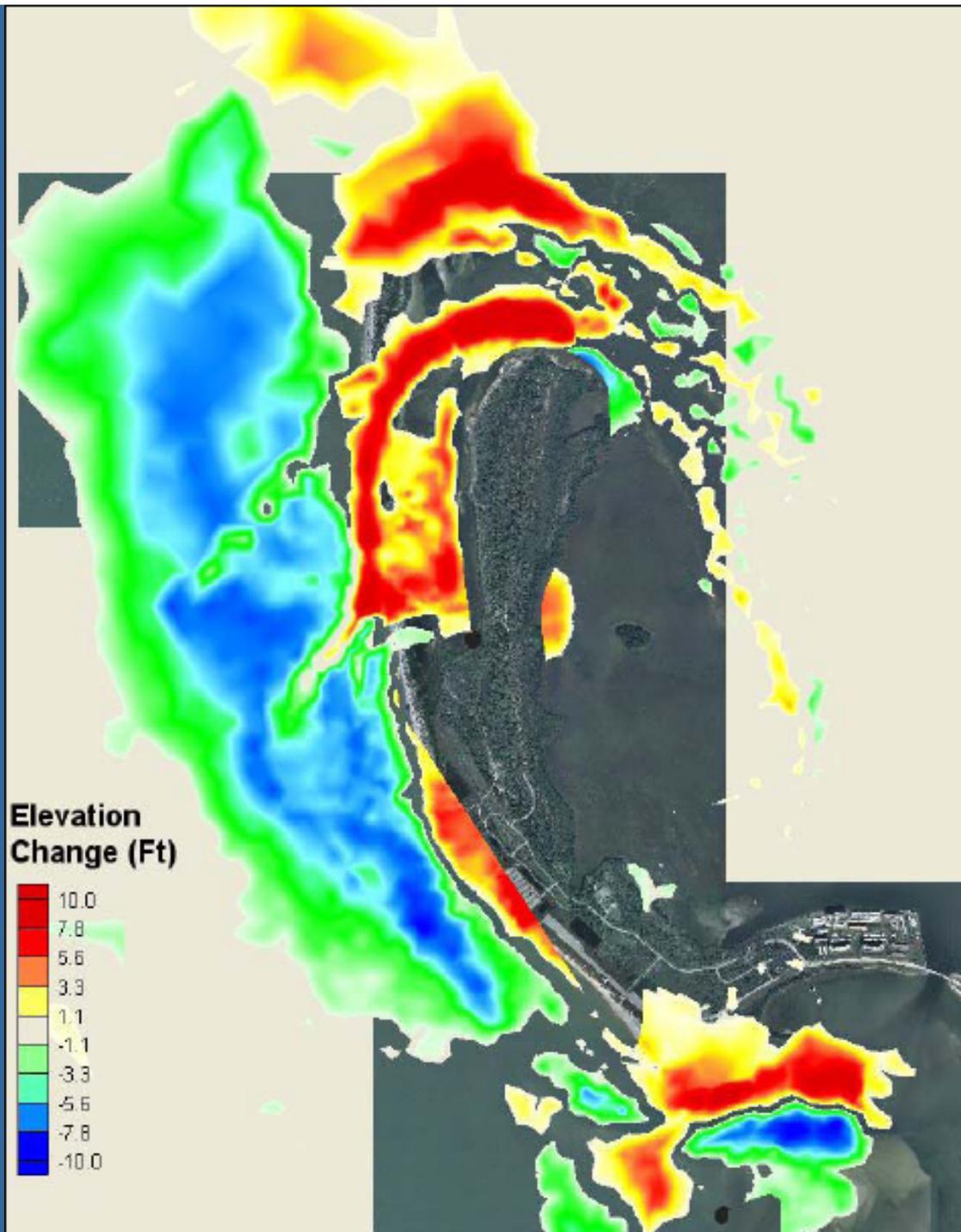
1926



1973



Honeymoon Island Elevation Changes: 1970 - 2001



Caladesi Island 1976



Dunedin Pass 1984



Clearwater Pass 1970's

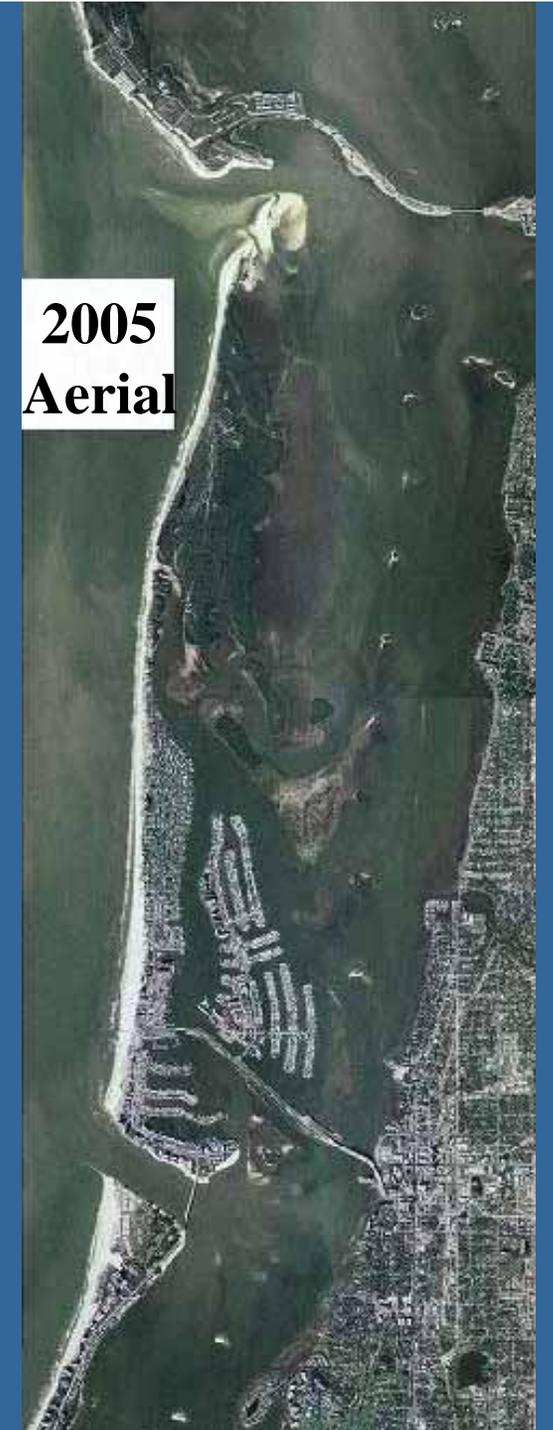
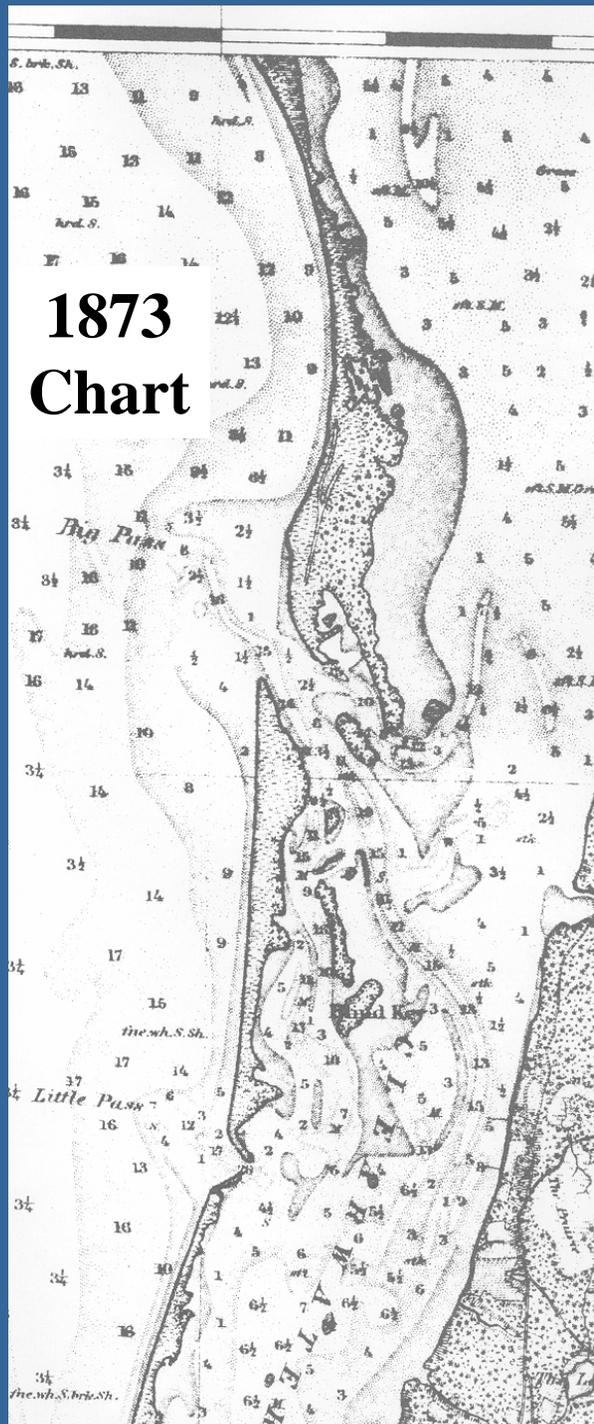


1973



1976

Overview of Natural and Human Changes



Modern Coastal Management

- **Honeymoon Island Beach Restoration Project**
- **Hurricane Pass**
- **Clearwater Pass**
- **Dunedin Pass**

Honeymoon Island 2006



2007 Honeymoon Island Beach Restoration Project



Dunedin Pass 2006



Clearwater Pass 2006



Summary

- Two inlets breached by hurricanes of 1848 and 1921
- Dredging in St. Joseph Sound & Clearwater Harbor contributed to inlet instability
 - ICW, causeways, finger canals.
- Closure of Dunedin Pass
- Stabilization of Clearwater Pass

Thank You!

