A Renewed Focus on Inlet Management: Committing to the Contributions of Dr. Dean and Senator Jones

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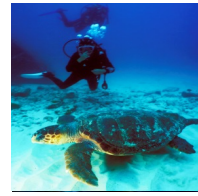
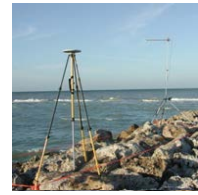
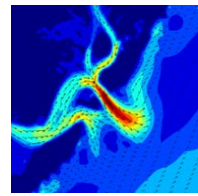
Need for Renewed Focus on Inlet Management

- Inlets are a major contributor to beach erosion
- Inlets are holders of large quantities of high quality sand
- Long term impacts are significant
- Beach nourishment is helping to catch up, but economical sand resources are getting harder to find
- Proper sediment management practices can offset the need for offshore/upland sand and reduce costs

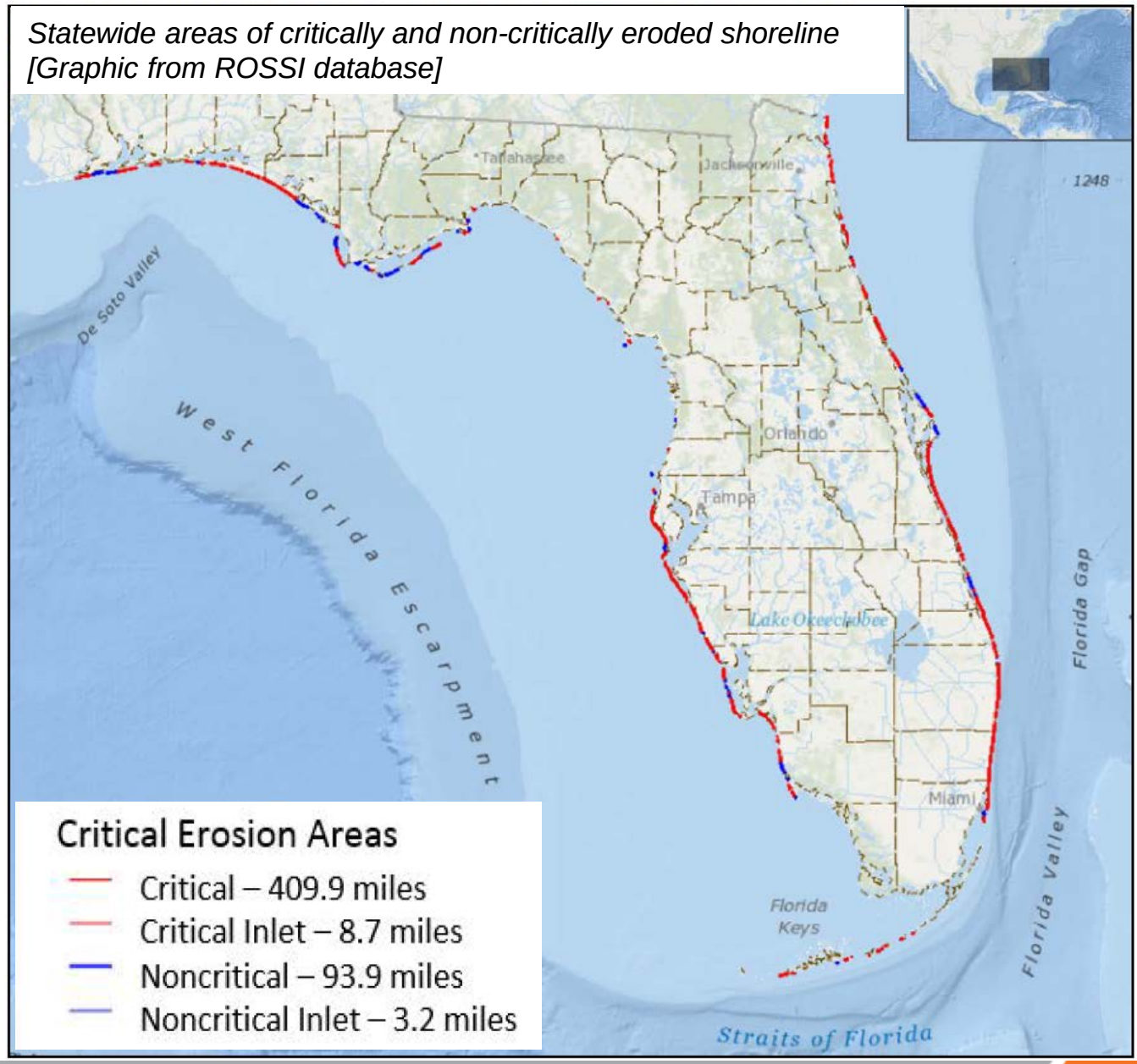


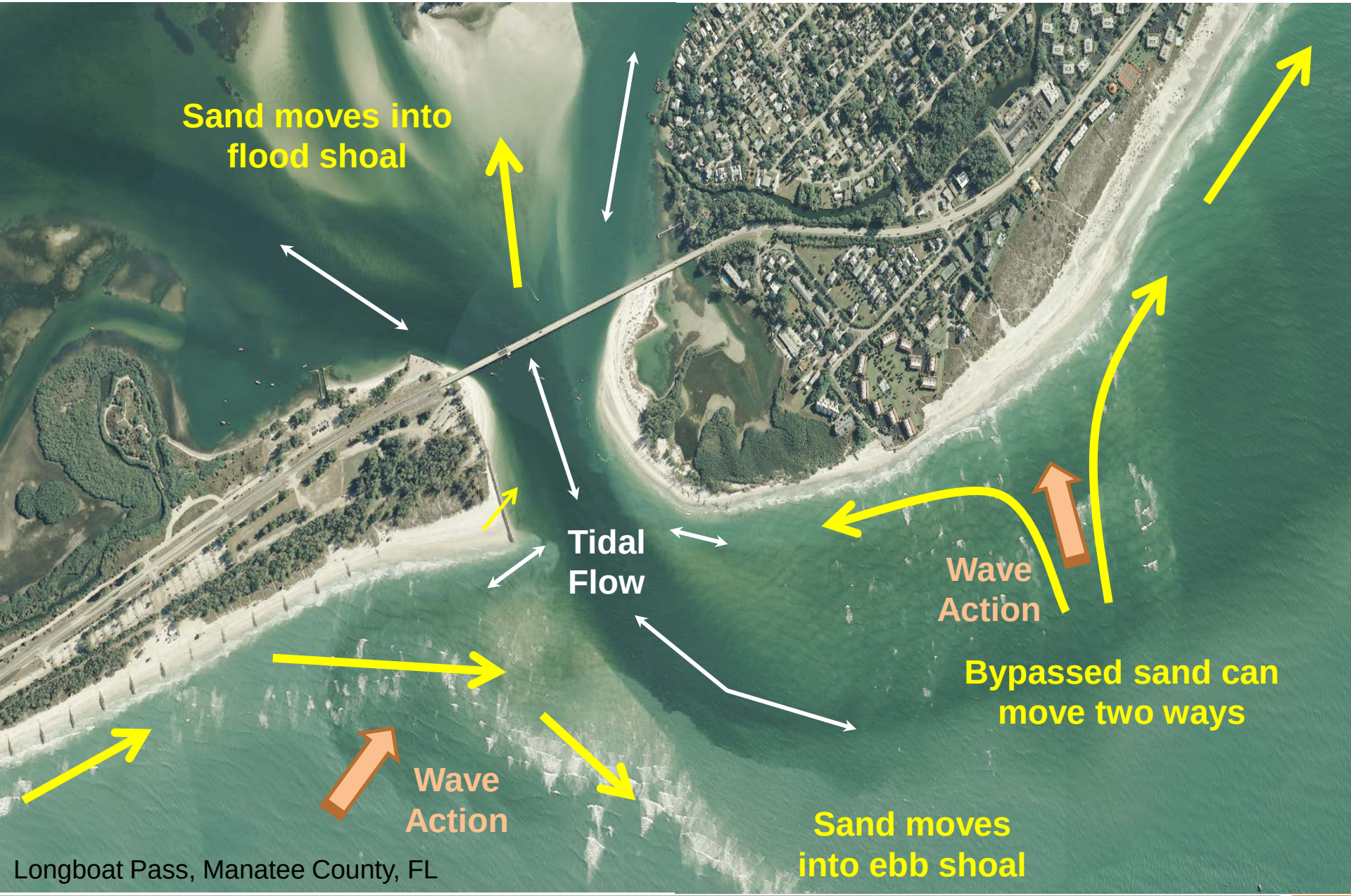


Critically Eroded Beaches in Florida (FDEP, June 2015)

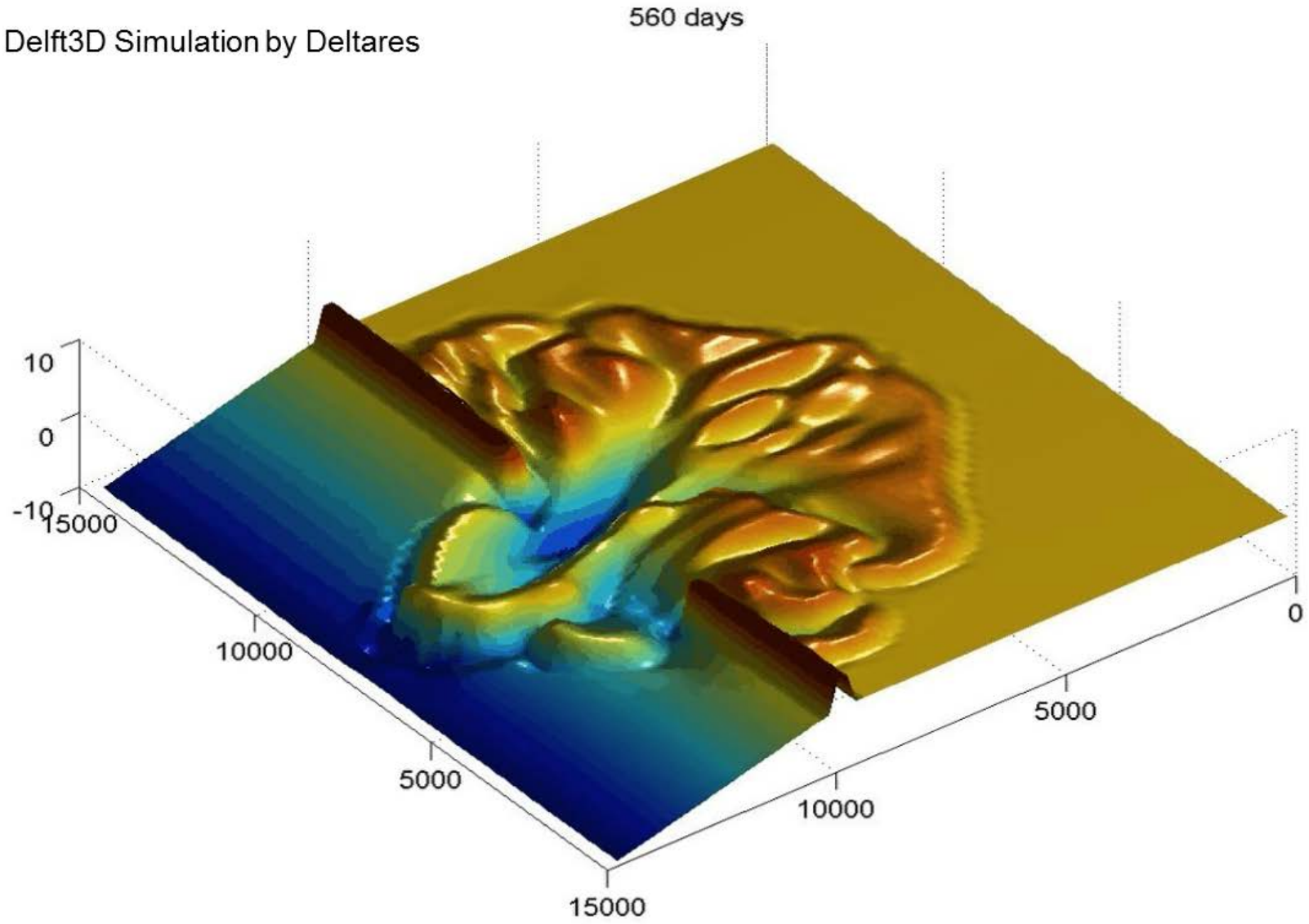
- 825 miles of sandy beaches
- 515.7 miles are eroding (62.5 %)
- 418.6 miles deemed critically eroded (50.7%)
- 66 tidal inlets
- Number of inlets fluctuates due to dynamic systems

Statewide areas of critically and non-critically eroded shoreline [Graphic from ROSSI database]





Longboat Pass, Manatee County, FL


Delft3D Simulation by Deltares
560 days
10
0
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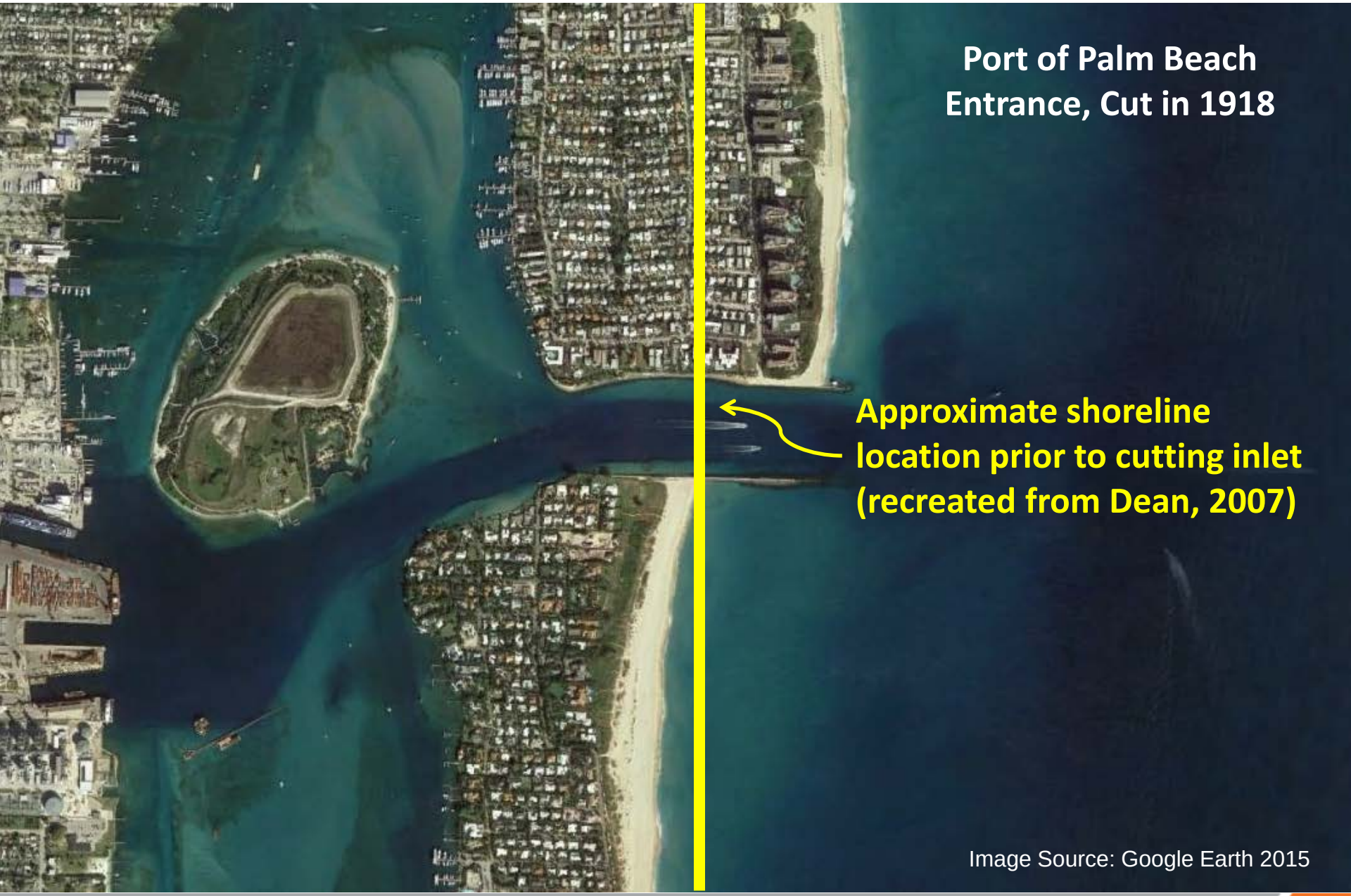
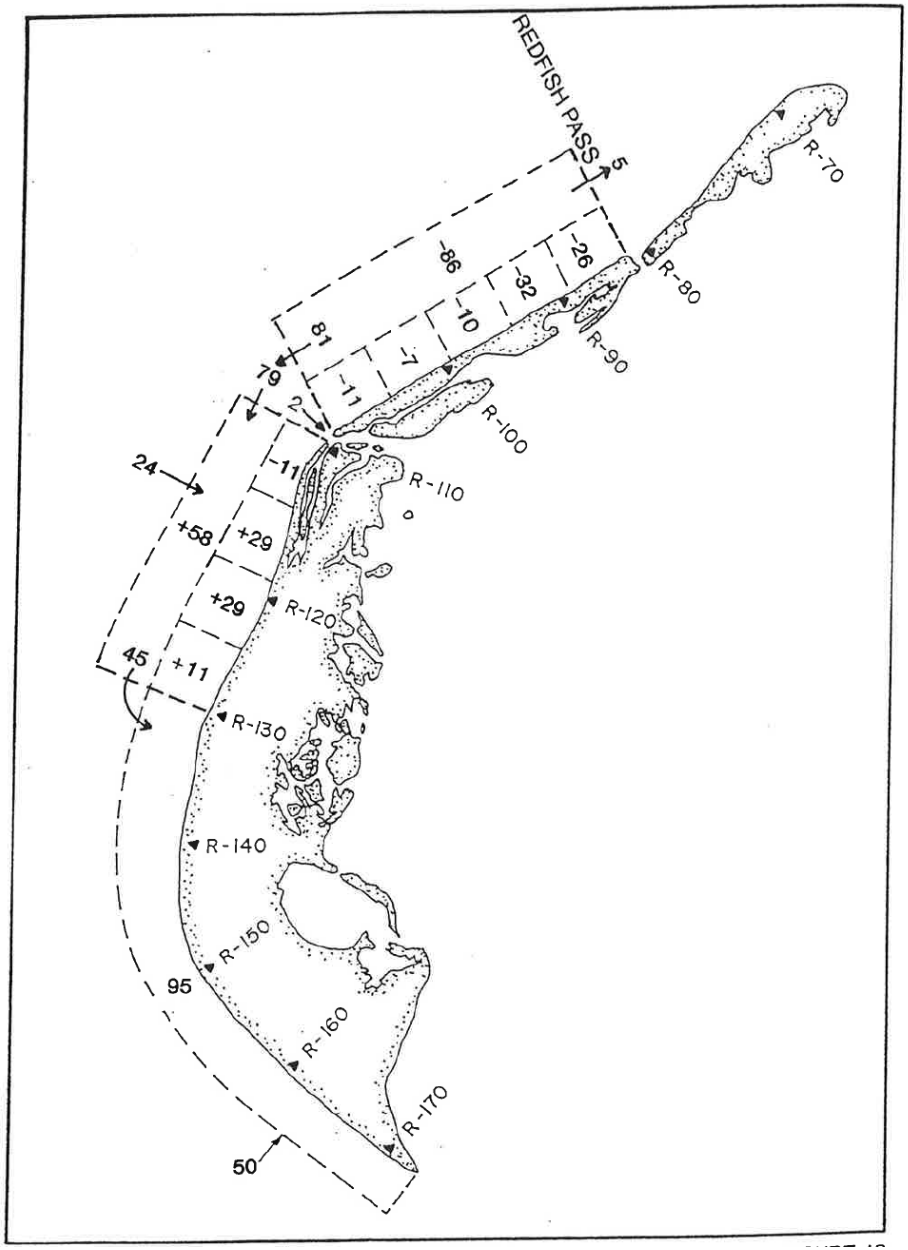
15000


Port of Palm Beach
Entrance, Cut in 1918
Approximate shoreline
location prior to cutting inlet
(recreated from Dean, 2007)
Image Source: Google Earth 2015

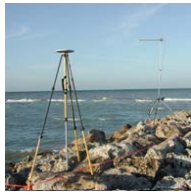
Balancing the Sediment Budget

- Evaluate littoral flow of sand
- Based on survey data and nourishment records
- Quantify impact of inlet
- Estimate bypassing quantities
- Identify needs to balance the budget
- Provides basis for numerical modeling

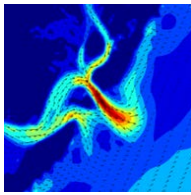


Typical Inlet Management Alternatives

- Do Nothing
- Retreat
  - Purchase property, reroute roads, etc.
- Close Inlet
  - Remove jetty structures
  - Fill in mechanically or naturally
- Management Strategies
  - Bypassing options
  - Beach nourishment
  - Structural stabilization
  - Combination

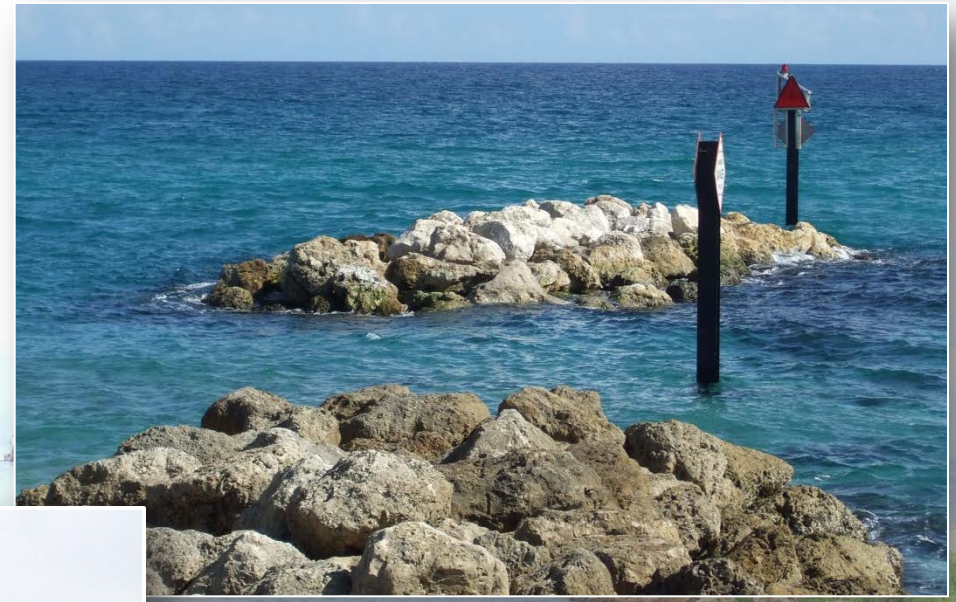


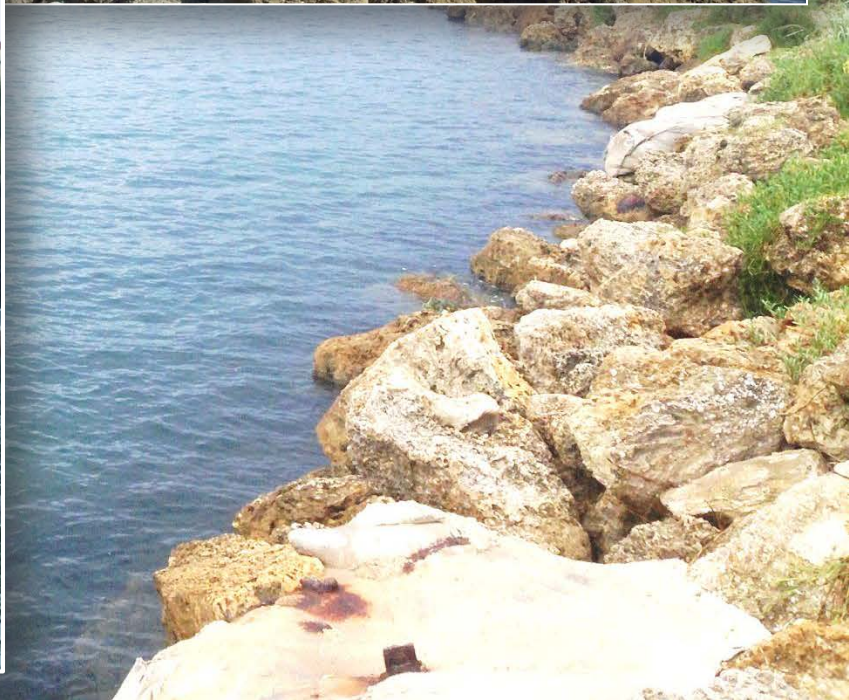


South Lake Worth (Boynton) Inlet

Boca Raton Inlet

1. Contract dredge for ebb shoal
2. City owned dredge for weir system



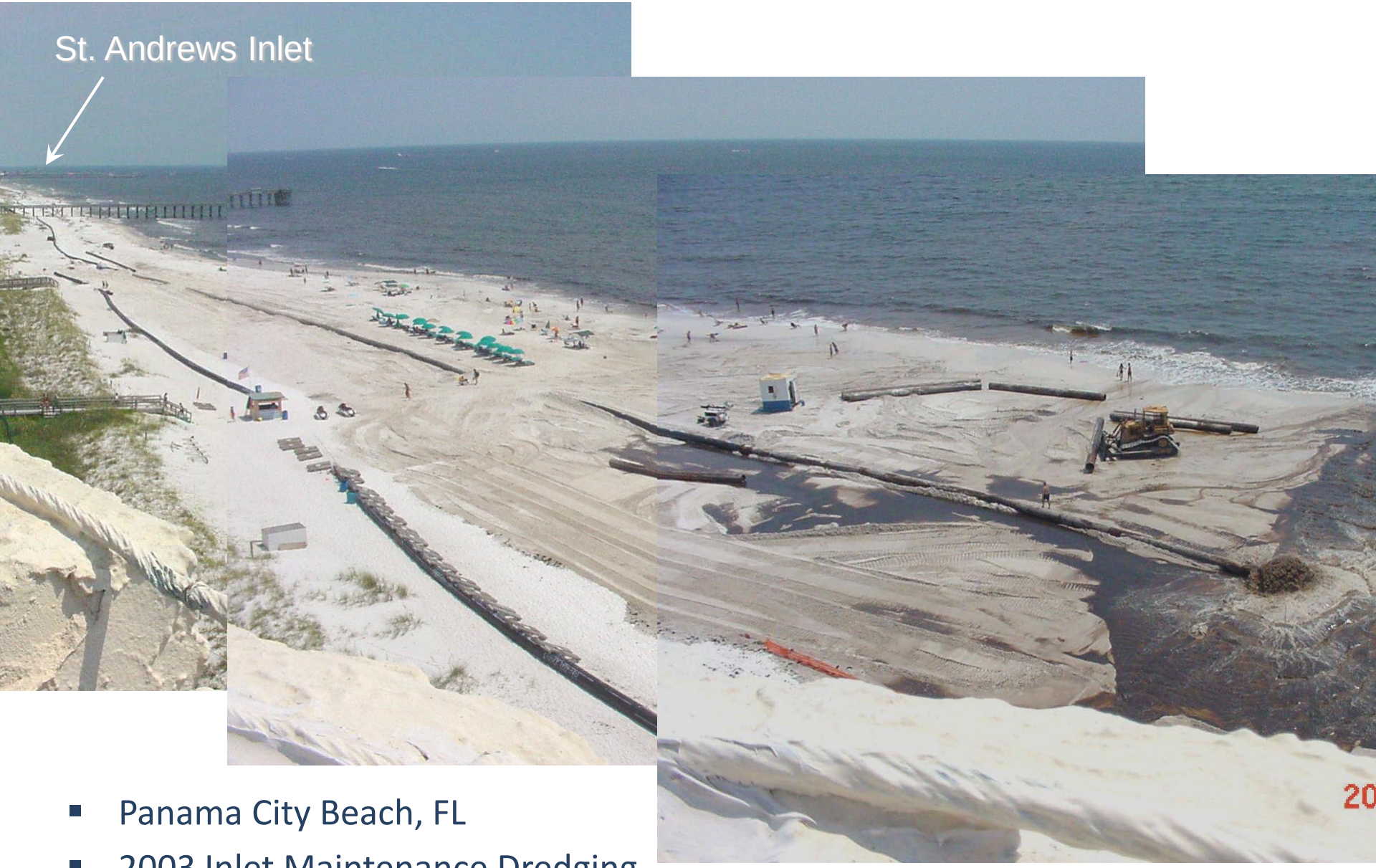


Hillsboro Inlet

- 14-inch cutterhead dredge
- Hillsboro Inlet District
- Inshore waters operation

Image source: http://www.lighthousescenictours.com/

Beach Nourishment with Inlet Sand



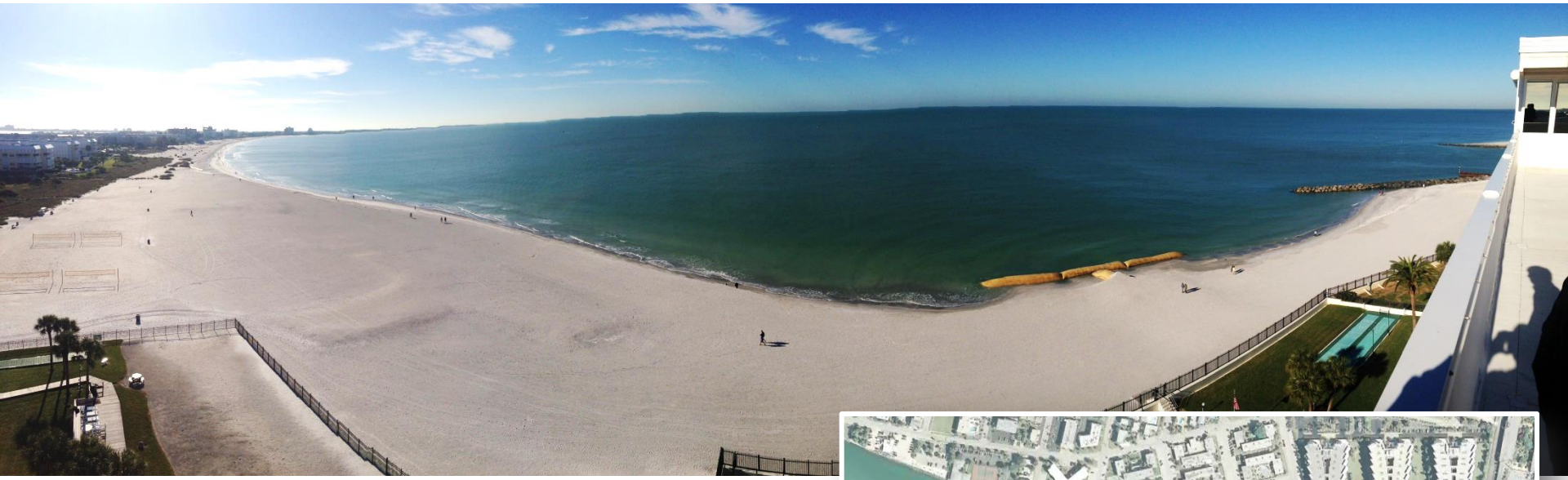
- Panama City Beach, FL
- 2003 Inlet Maintenance Dredging

- Town of Palm Beach (Mid-Town), FL

- Upham Beach, FL

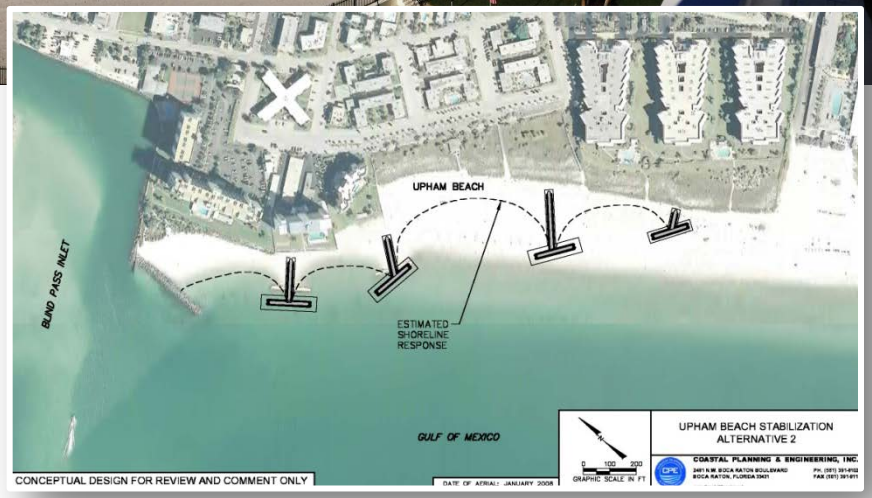
- Both photos 2 years post-fill
- 100 ft wider beach with structures

- Upham Beach, FL - January 29, 2015
- USACE 2014 project placed 157,000 CY from Egmont Shoals East



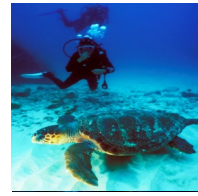
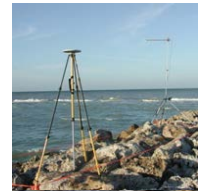
Future strategy:

- Install rock groins in modified layout
- Nourish with sand from Blind Pass
- Supplemental fill if needed

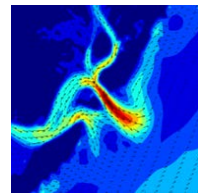


Current State of Inlet Management

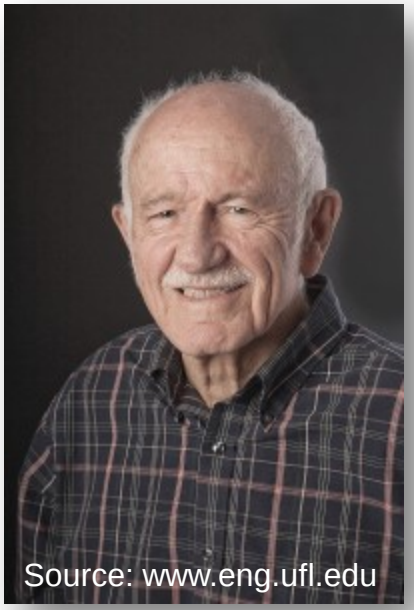
- Inlets require active and adaptive management
- Studies are used to determine best strategy
- Several methods have been proven effective
- A combined approach is common
- Bypassing is limited by the amount of sand available
- Environmental restrictions may exist





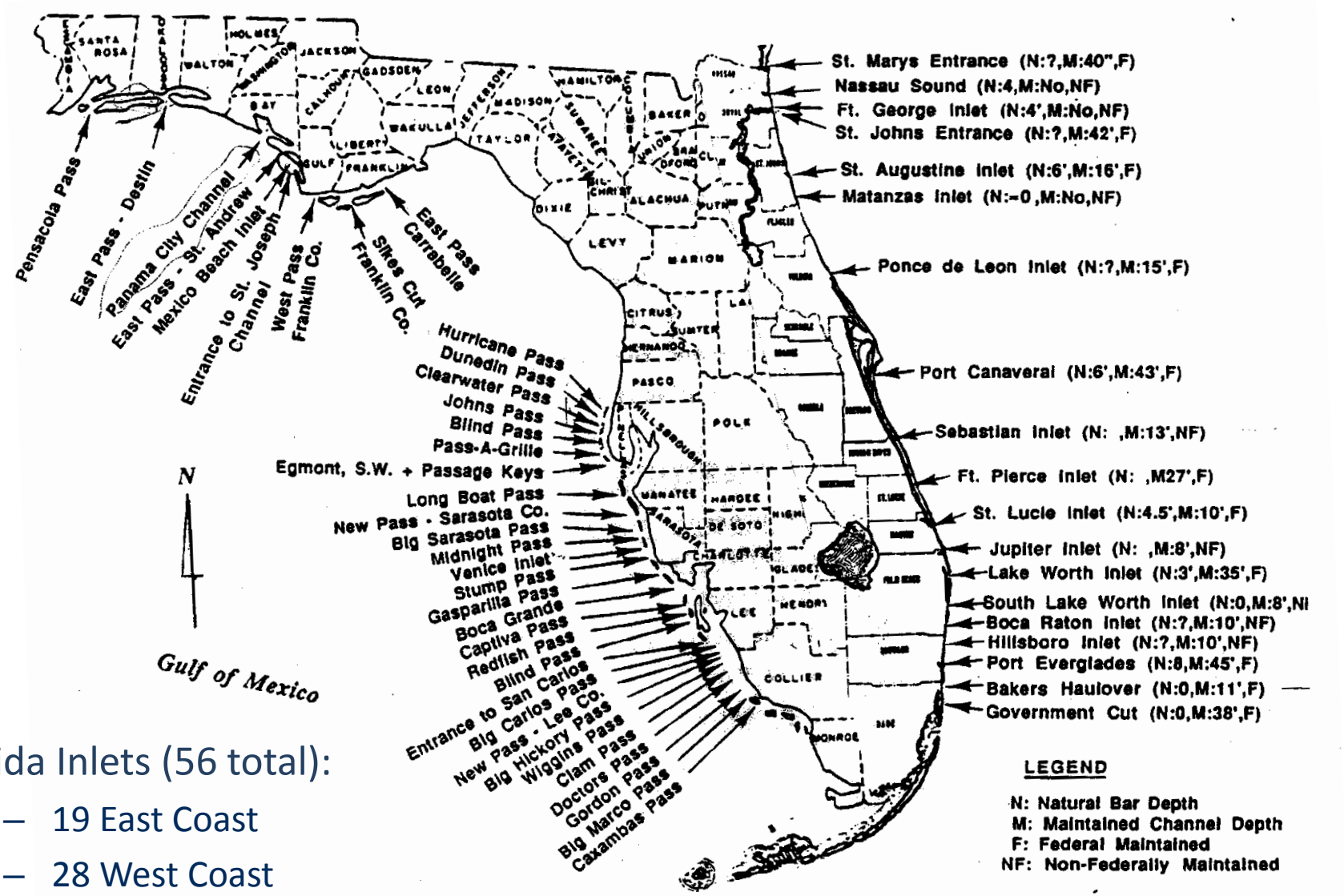
"Hopefully, With Many of the Pressing Nourishment Projects Accomplished, Attention and Resources Will be Directed to Inlet Management"


Source: www.eng.ufl.edu

- Dr. Robert Dean

The Scientific/Technical Evolution of Beach Nourishment and Sand By-Passing Projects in Florida, FSBPA's 50th Anniversary of Beach Preservation, Sept 2007.

Dr. Dean's Program Assessment (FSBPA, Sept 2007)

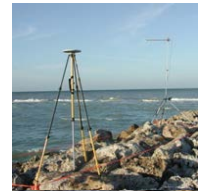


Florida Inlets (56 total):

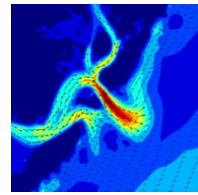
- 19 East Coast
- 28 West Coast
- 9 Panhandle

Dr. Dean's Program Assessment (FSBPA, Sept 2007)

- Addressing the Inlet Problem Has Proven More Difficult Than Shoreline Stability
  - This is Due to the Numerous and Diverse Stakeholders and the Interpretation of Sand Ownership on the Updrift Side of the Inlet
- Inlets Which have Been Modified for Navigation, Include Jetties and/or Artificially Deepened Channels
  - These Features Interrupt Longshore Sediment Transport and Cause Downdrift Erosion

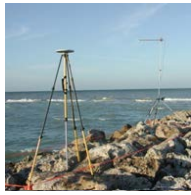




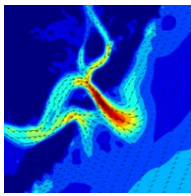
Dr. Dean's Program Assessment (FSBPA, Sept 2007)

- Florida's Beach Management Program Has Been Very Effective in Restoring Beaches

- 70 million cubic yards of sand have been placed on Florida's eroding beaches as part of beach nourishment projects



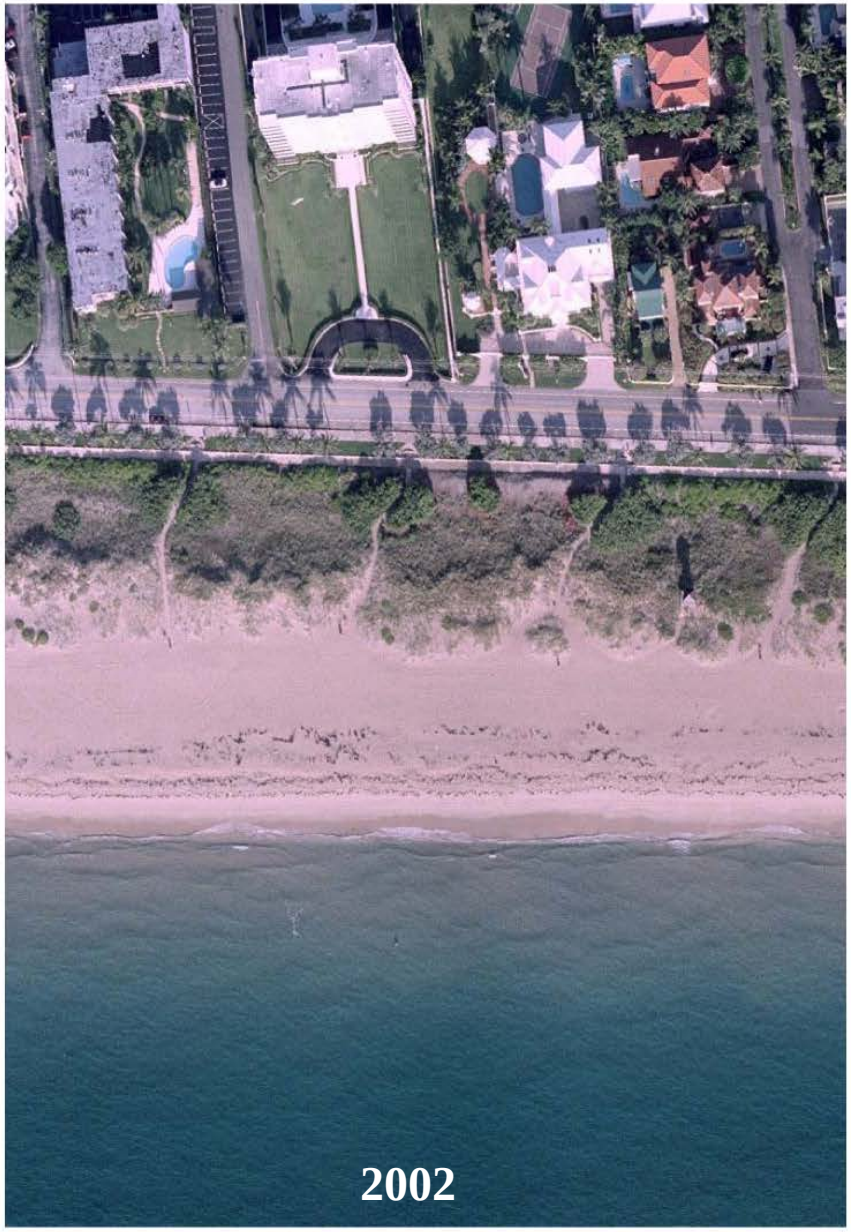



Miami Beach
1978


1982

Miami Beach Today

Delray Beach, FL - Maintained since 1973



Delray Beach, FL (2013)

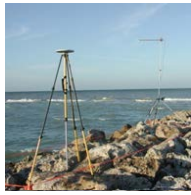
Dr. Dean's Program Assessment (FSBPA, Sept 2007)

1. 55 Million Cubic Yards Has Been Removed From the Nearshore System in Conjunction With Navigational Entrances

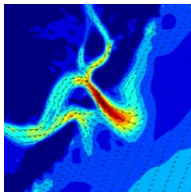
2. Inlets Are Responsible for 80% to 85% of the Erosion on Florida's East Coast

3. Inlets are A More Difficult Problem Than Nourishment Due to the Diversity of Stakeholders

"Hopefully, With Many of the Pressing Nourishment Projects Accomplished, Attention and Resources Will be Directed to Inlet Management"

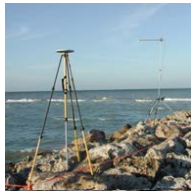





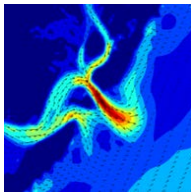


Comprehensive long-term management plan for the restoration and maintenance of the state's critically eroded beaches:

- Division of Water Resource Management, Florida Department of Environmental Protection, updated June 2015
- Directed by the Florida Legislature and prepared in accordance with Sections 161.091, 161.101, and 161.161, Florida Statutes
- Inventory of Florida's strategic beach management areas and coastal barrier tidal inlets
- Strategies are eligible for state financial participation subject to Department approval and appropriation from the Florida Legislature.
- Incorporates adopted Inlet Management Plans (IMPs)

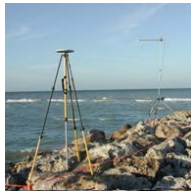





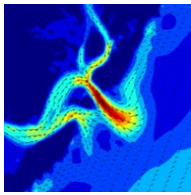


17 of Florida's inlets have adopted IMPs:

- Port Canaveral Inlet Management Plan 2014 - Approved for adoption 8-7-14
- St. Augustine Inlet Management Implementation Plan - Approved for adoption 1-17-14
- East Pass Inlet Management Implementation Plan – Adopted 7-29-13
- Bakers Haulover Inlet Management Study - Approved for adoption 9-5-97
- Boca Raton Inlet Management Study - Approved for adoption 9-19-97
- Doctors Pass Inlet Management Study - Approved for adoption 6-6-97
- Ft. Pierce Inlet Management Study- Approved for adoption 5-30-97
- Hillsboro Inlet Management Study- Approved for adoption 9-5-97
- Jupiter Inlet Management Study- Approved for adoption 9-5-97
- Lake Worth Inlet Management Study- Approved for adoption 11-25-96
- Ponce DeLeon Inlet Management Study- Approved for adoption 3-10-97
- Port Everglades Inlet Management Study - Approved for adoption 5-3-99
- Sebastian Inlet Management Study- Approved for adoption 3-16-00
- South Lake Worth Inlet Management Study- Approved for adoption 3-5-99
- St. Lucie Inlet Management Study- Approved for adoption 8-7-95
- St. Marys River Entrance Inlet Management Study- Approved for adoption 5-18-98
- Venice Inlet Management Study- Approved for adoption 9-16-98





http://www.dep.state.fl.us/BEACHES/publications/index.htm#Inlet_Management

Dennis Jones – "Florida's Sandman"

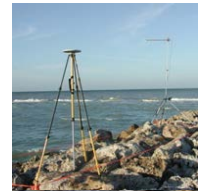
- Former Republican member of the Florida State Senate
- Representing District 13 from 2002 to 2012
- Served in the Florida House of Representatives from 1978 to 2000
- Champion of inlet management legislation and avid supporter of beach nourishment

Information and image source: http://ballotpedia.org/Dennis_Jones_(Florida)#Biography

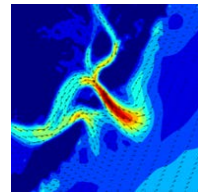
In 1986, the Florida Legislature recognized that while Florida's improved inlets must be maintained for commercial and recreational navigation, these inlets interrupt the natural flow of sand and have significantly contributed to beach erosion.

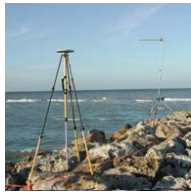
- Section 161.142:
  - Declaration of public policy relating to improved navigation inlets
  - Beach-quality sand from inlets should be placed on the beaches
  - Restore the net annual transport on an average annual basis

- Section 161.161:
  - Procedure for approval of projects
  - Evaluate inlets to determine cause of erosion
  - Develop mitigation strategies, cost estimates and cost sharing

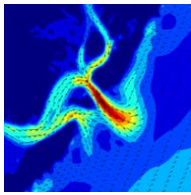





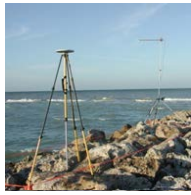


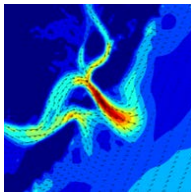




- Provides legislative intent to direct and commit the state's beach management efforts to address beach erosion caused by Florida's inlets, and declares that it is in the public interest to replicate the natural flow of sand at inlets.
- Went into effect July 1, 2008
- Creates FS 161.143
- Inlet list shall include at least 10 separate inlets
- Top 3 inlets to get at least 10% of appropriation
- Inlet of the Year designated from Top 3 for fast tracking





- 161.143 - Inlet management; planning, prioritizing, funding, approving, and implementing projects.

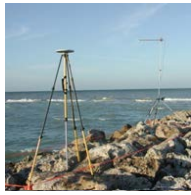
- (1) Studies, projects, and activities for the purpose of mitigating the erosive effects of inlets and balancing the sediment budget of the inlet and adjacent beaches must be supported by separately approved inlet management plans ... Such plans in support of individual inlet projects or activities must ... evaluate each inlet to determine the extent of the inlet's erosive effect on adjacent beaches and, if significant, make recommendations to mitigate such ongoing erosive effects and provide estimated costs for such mitigation.

Rule 62B-36:

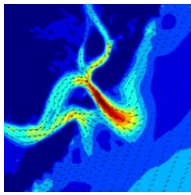
- Governs policy on the ranking and cost sharing of state-funded restoration and inlet management projects.
- Provides procedures for executing a comprehensive, long-range, statewide beach management plan for the protection of Florida's critically eroded shoreline.

Inlet projects are eligible for 75% state share:

- Ranking largely based on balancing sediment budget
- Historically favored large inlets with federal funds

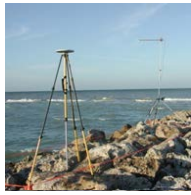




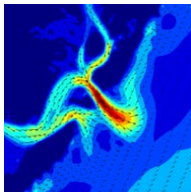
Inlet Sand Bypassing/Inlet Management Plan Implementation Projects			
FY	Amount Requested (State Share)	Amount Appropriated (State Share)	
2012-2013	$20,030,606	$1,811,589	9%
2013-2014	$9,271,566	$1,992,492	21%
2014-2015	$14,359,316	$7,059,250	49%
2015-2016	$9,787,190	$0	0%
TOTAL	**$53,448,678**	**$10,863,331**	**20%**

Management Challenges

- Only 17 Inlet Management Plans have been adopted
- Most were adopted over 15 years ago
- Funding eligibility is dependent upon adopted IMP and/or inclusion in the SBMP, which is beyond the control of the local sponsor
- Funding is needed to perform the studies to qualify for funding …
- $0 for inlets in FY2015-16
- Ranking procedure has improved, but could leave the majority of inlet related problems unaddressed

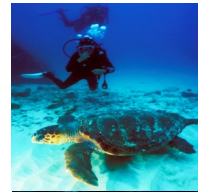
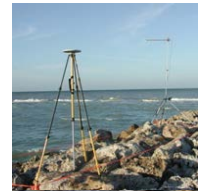





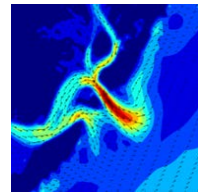


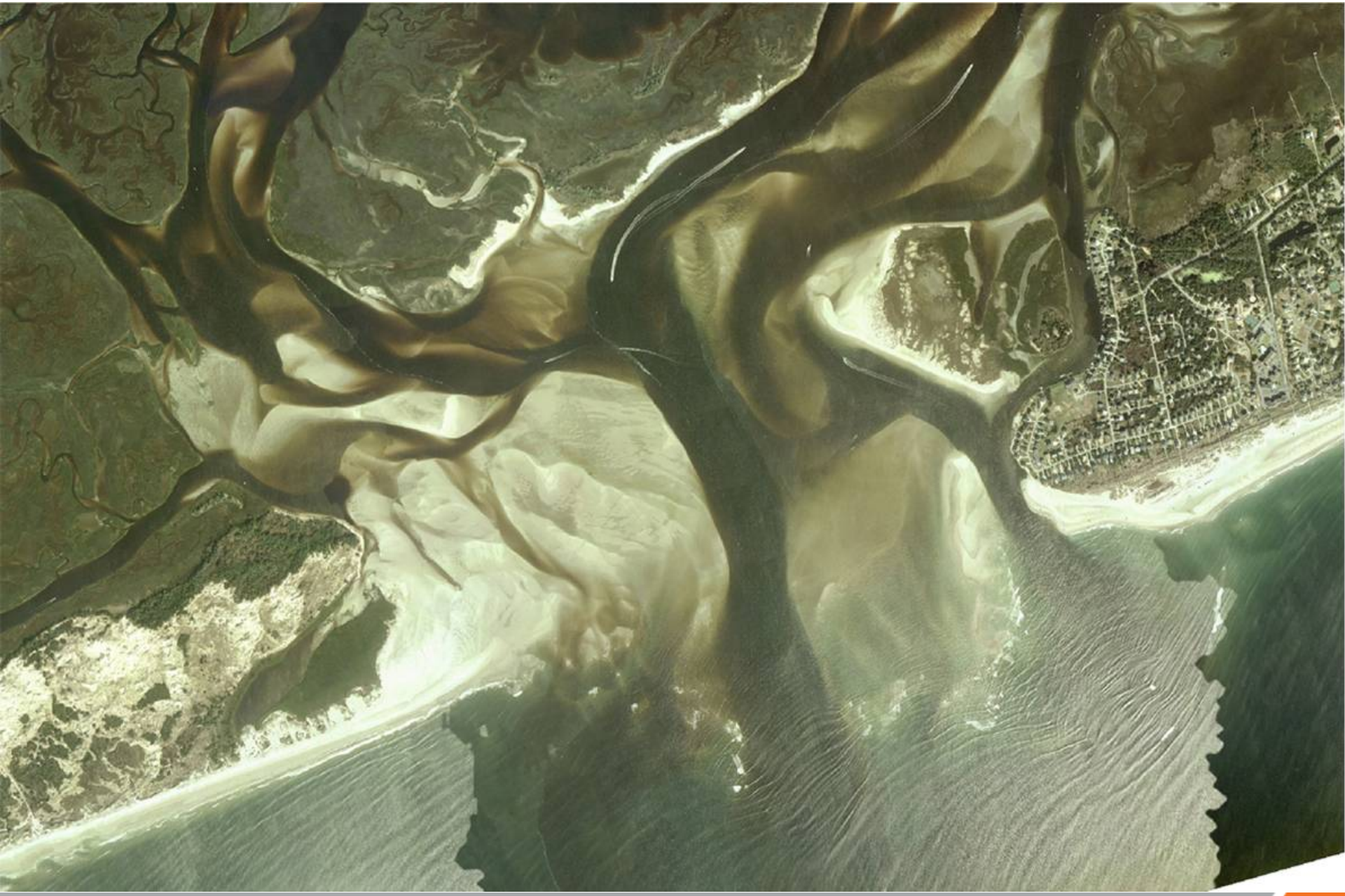
Summary

- Inlets contribute to erosion and hold beach quality sand
- Every inlet is different
- Combination of management methods may be needed
- IMP studies are critical and should be funded and adopted
- Some IMP studies are underway with support of local sponsors and the FDEP
- With more work and focus, we can live up to the expectations of Dr. Dean and the vision of Senator Jones







Thank You!