

THE EVOLUTION OF SAND MANAGEMENT AT SOUTH LAKE WORTH INLET

By

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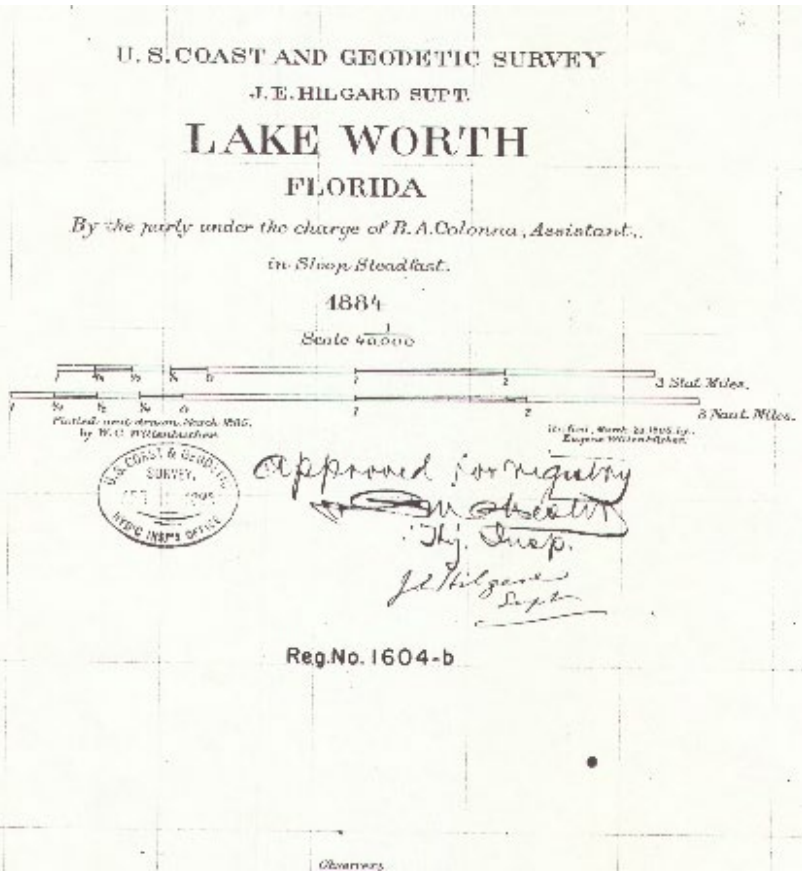
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VIEWPOINTS

- ▶ Evolution in Management
- ▶ Evolution in the Coastal Processes



PROLOGUE



LEGISLATURE CHARTER

- ▶ Chapter 7080 Laws of Florida, Acts of 1915, authorizes the constitution of an inlet connecting the waters of Lake Worth with the Atlantic Ocean by and under the direction, supervision and management of the Board of Commissioners [of the South Lake Worth Inlet District].
- ▶ Board is authorized to clean out, straighten, widen, change the course of or deepen any water course, or natural stream or body of water in said district that may be deemed as necessary by said Board to facilitate the opening and maintenance of the canal, inlet or waterway between said Lake Worth and the Atlantic Ocean...



SLWI INLET'S PURPOSE

- ▶ To flush the stagnant waters of southern Lake Worth
- ▶ And [incidentally] provide navigation.



1925 CONSTRUCTION BEGINS



1927 INLET CONSTRUCTION IS COMPLETED



Photo circa 1927



1928 HURRICANE



Source: NOAA



HURRICANE OF 1928 IMPACTS



1928 HURRICANE IMPACTS



EARLY (1930'S) INLET BEACH PROCESSES

- ▶ Jetties are overtopped by waves and sand
- ▶ Difficulty maintaining a channel
- ▶ Sand accumulates within the flood shoal

- ▶ SLWID Response:
 - > Raised the Jetties to 12 feet
 - > Initiated sand bypassing in 1937 to keep sand out of the channel



1945



CIRCA 1950



1954 INTERIOR TRAINING WALLS EXTENDED



1959 OCEAN RIDGE WATERFRONT DEVELOPMENT



RESPONSES TO ONGOING SEDIMENT MANAGEMENT

- ▶ Flood shoal continues to accumulate sand-maintaining a channel is difficult
- ▶ District commissions Per Bruun and the University of Florida to investigate via physical scale modelling.
- ▶ Recommendations include:
 - > Extend both jetties waterward
 - > Move bypassing plant ~100 feet waterward
 - > Bypass from the plant and interior no more than 150,000 cy/yr to southern beaches.



1966 JETTY EXTENSION UNDERWAY



CONSEQUENCES OF THE 1967 INLET MODIFICATIONS

- ▶ Accretion on Manalapan's beaches
- ▶ Ebb shoal growth
- ▶ Reduction in flood shoal accumulations
- ▶ Loss of beach in Ocean Ridge
- ▶ Maintaining the flushing of Lake Worth



1969



1980



1981



IN 1986, CH 161. F.S. WAS AMENDED

- ▶ “Section 161.142, Florida Statutes, is created to read:
- ▶ 161.142 Declaration of public policy respecting improved navigation inlets.--The Legislature hereby recognizes the need for maintaining navigation inlets to promote commercial and recreational uses of our coastal waters and their resources.
- ▶ The Legislature further recognizes that **inlets alter the natural drift of beach quality sand resources**, which often results in these sand resources being deposited around shallow outer-bar areas instead of providing natural nourishment to the downdrift beaches.
- ▶ Therefore:
- ▶ (1) All construction and maintenance dredgings of beach-quality sand should be placed on the downdrift beaches;.....
- ▶ (2) **On an average annual basis, a quantity of sand should be placed on the downdrift beaches equal to the natural net annual longshore sediment transport.....”**



DISTRICT RESPONSE*

- ▶ Fulfills its 1915 legislative charter
- ▶ Tries to ignore its responsibility under 161.142 F.S. to mitigate for inlet impacts.

- ▶ Resulting in,
- ▶ Eroded conditions in Ocean Ridge
- ▶ Legal action involving Ocean Ridge, District, County, Manalapan

* (Gee and Jensen, 1994)



NEW MANAGEMENT 1995

- ▶ Legislature dissolves the District and charges the County with all inlet responsibilities.
- ▶ County resolves the legal actions
- ▶ County sponsors the Ocean Ridge Shore Protection Project
- ▶ Keeps bypassing sand
- ▶ Spearheads a joint, peer reviewed inlet management study resulting in a FDEP adopted Inlet Management Plan (IMP)
- ▶ Initiates a long term comprehensive physical monitoring plan to support the IMP



CURRENT MANAGEMENT ACTIVITIES



MOVING FORWARD

- ▶ IMP studies (2004, 2021) indicate that **ALL** sedimentary impacts are being addressed through:
 - ▶ Mechanical sand transfer,
 - ▶ Flood shoal dredging
 - ▶ Offshore dredging to construct the Ocean Ridge Shore Protection Project
- ▶ Sediment budget updates have resulted in incremental inlet knowledge
- ▶ County has requested a revised IMP from FDEP
- ▶ Ongoing coordination with the affected governments



LESSONS LEARNED



- ▶ Evolution in Management
- ▶ Evolution in the Coastal Processes



Fulfilling Chapter 161.142 is challenging. Palm Beach County has demonstrated for over 20 years that fulfilling the intent of Chapter 161.142 is feasible.

And,
good inlet management

good beach management

good economic management.



PHOTO CREDITS

Historical photographs were borrowed from the following:

- ▶ Leroy Paslay, former Mayor of Manalapan
- ▶ U.S. Army Corps of Engineers
- ▶ Palm Beach County
- ▶ APTIM Coastal Archives
- ▶ Palm Beach Post



QUESTIONS

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