

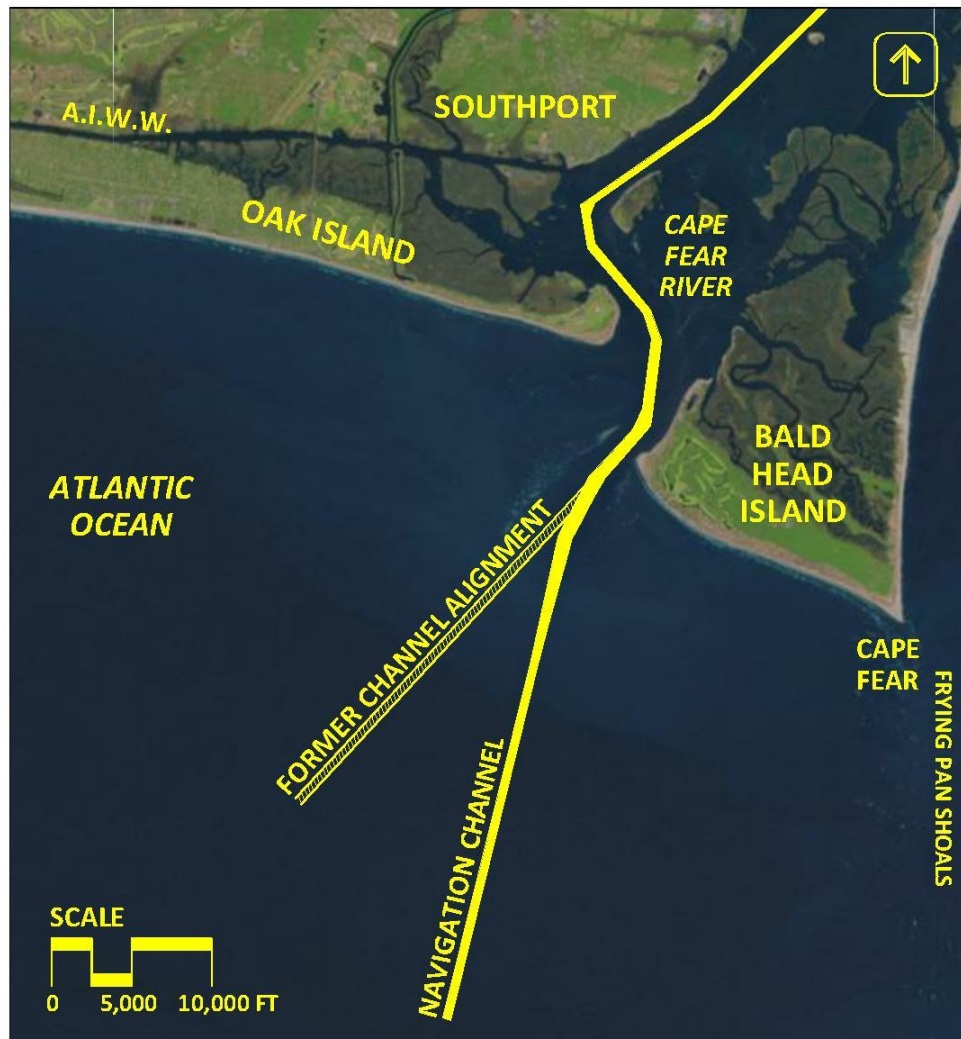
# Village of Bald Head Island, NC

**April 5, 2022**

## **Coastal Sustainability Shoreline Management Program & Terminal Groin**



**Chris McCall, Village Manager**



# SHORE STABILIZATION STRATEGY

BEACH DISPOSAL  
(WHSMP)

RENOURISHMENT  
(LOCAL)

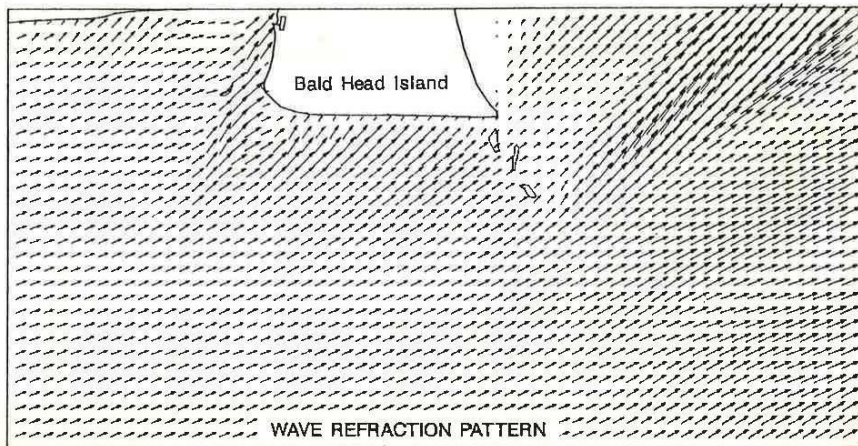
STRUCTURES

**VBHI**



# **Feasibility Study of Beach Restoration at Bald Head Island, N.C.**

## **EXECUTIVE SUMMARY**



**Prepared For:**

**The Village of Bald Head Island, N.C.**

**Prepared By:**

**Olsen Associates, Inc.**

**R.W. Stevens & Assoc., Inc.**

**April, 1989**



**olsen**  
associates, inc.  
4438 Herschel Street  
Jacksonville, FL 32210  
(904) 387-6114  
(Fax) 384-7368

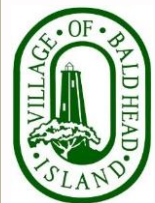
# **The Genesis for Beach Management**



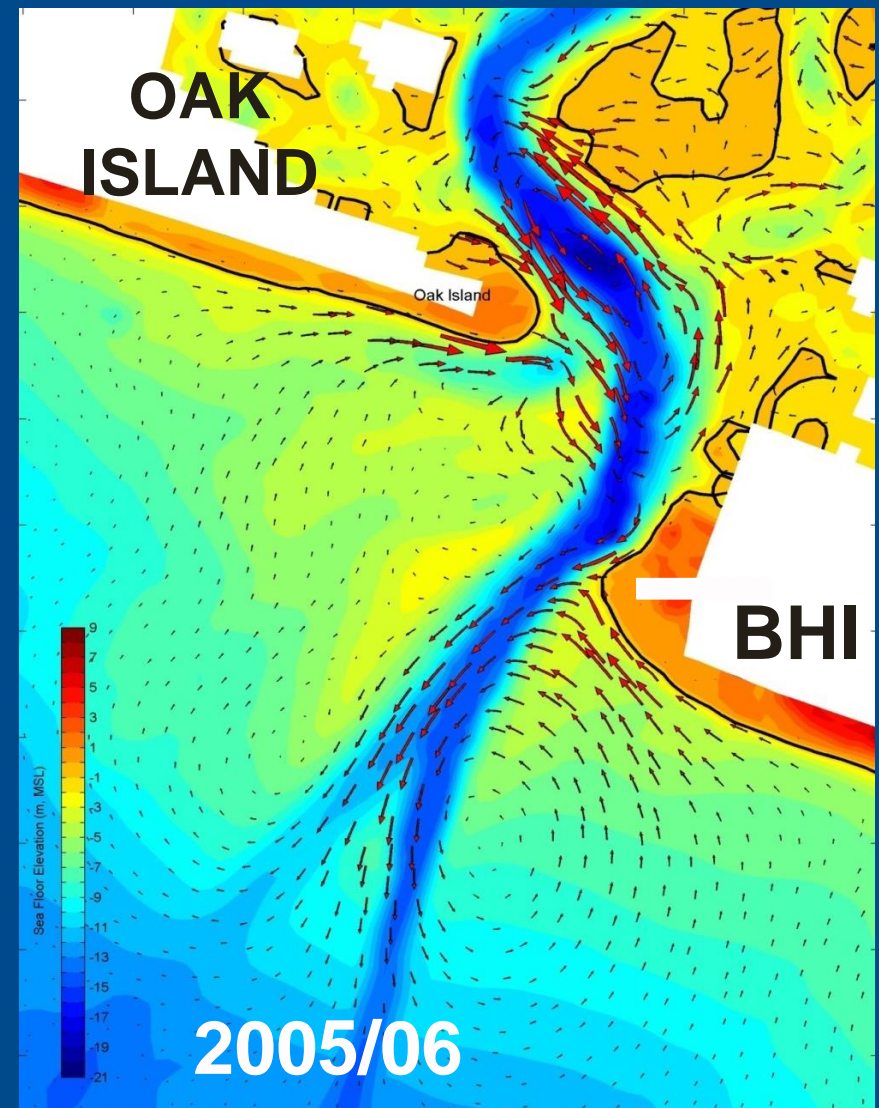
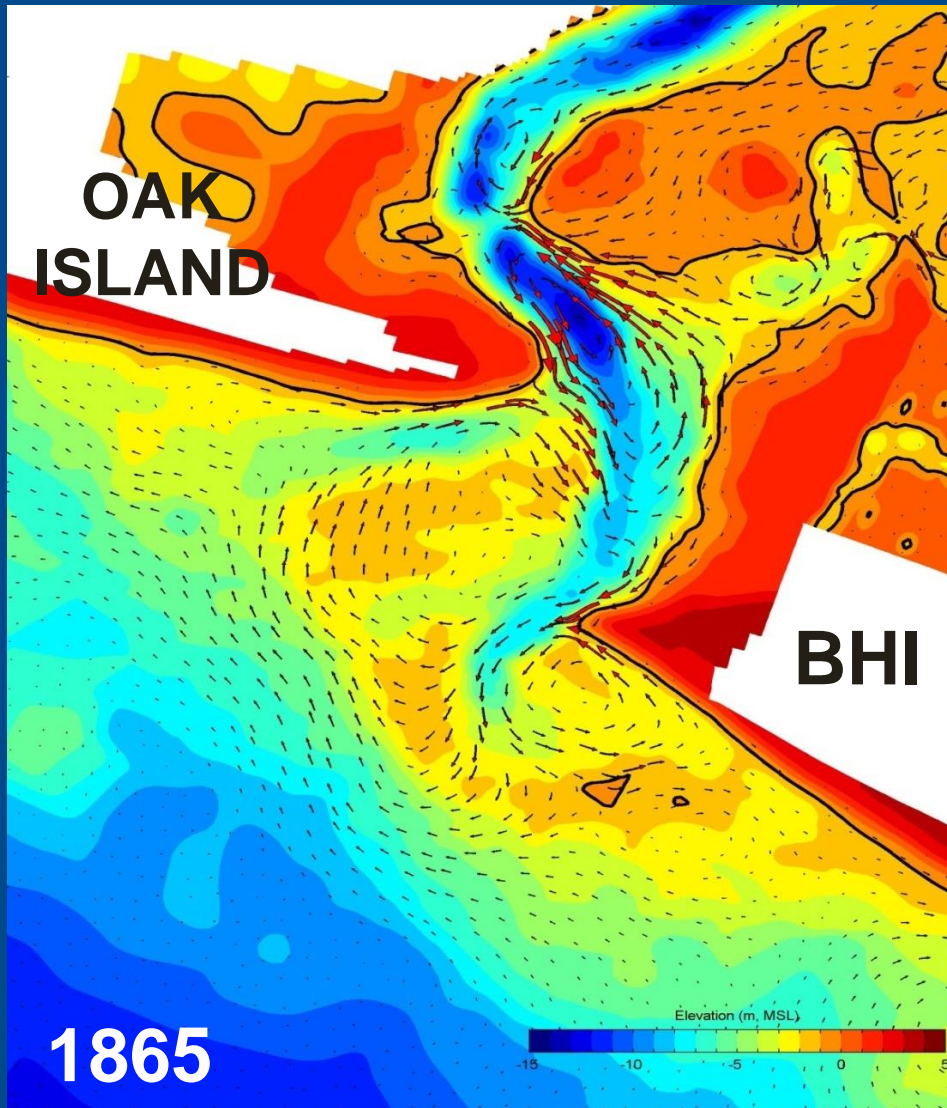


# **The 1989 Report came to several noteworthy conclusions and recommendations:**

- **Recommended for the 1995 groin field, and developed a causal link between the federal navigation project and erosion of Bald Head Island**

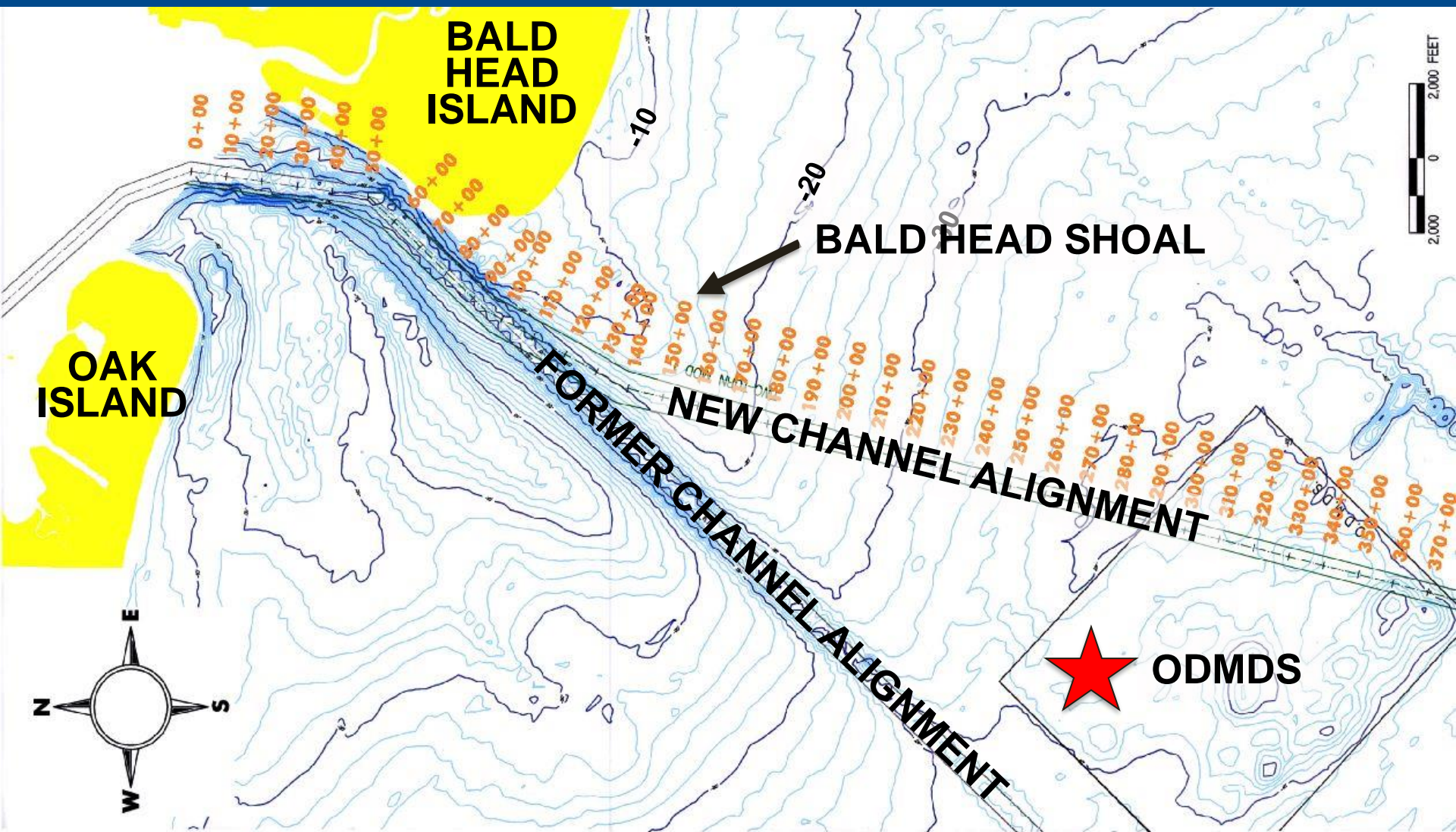


# NAV. PROJECT IMPACTS – LONG-TERM



## LOSS OF SAND SHARING SYSTEM





# 2000 Channel Deepening Project

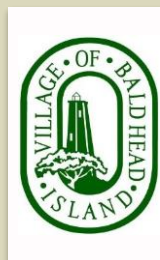
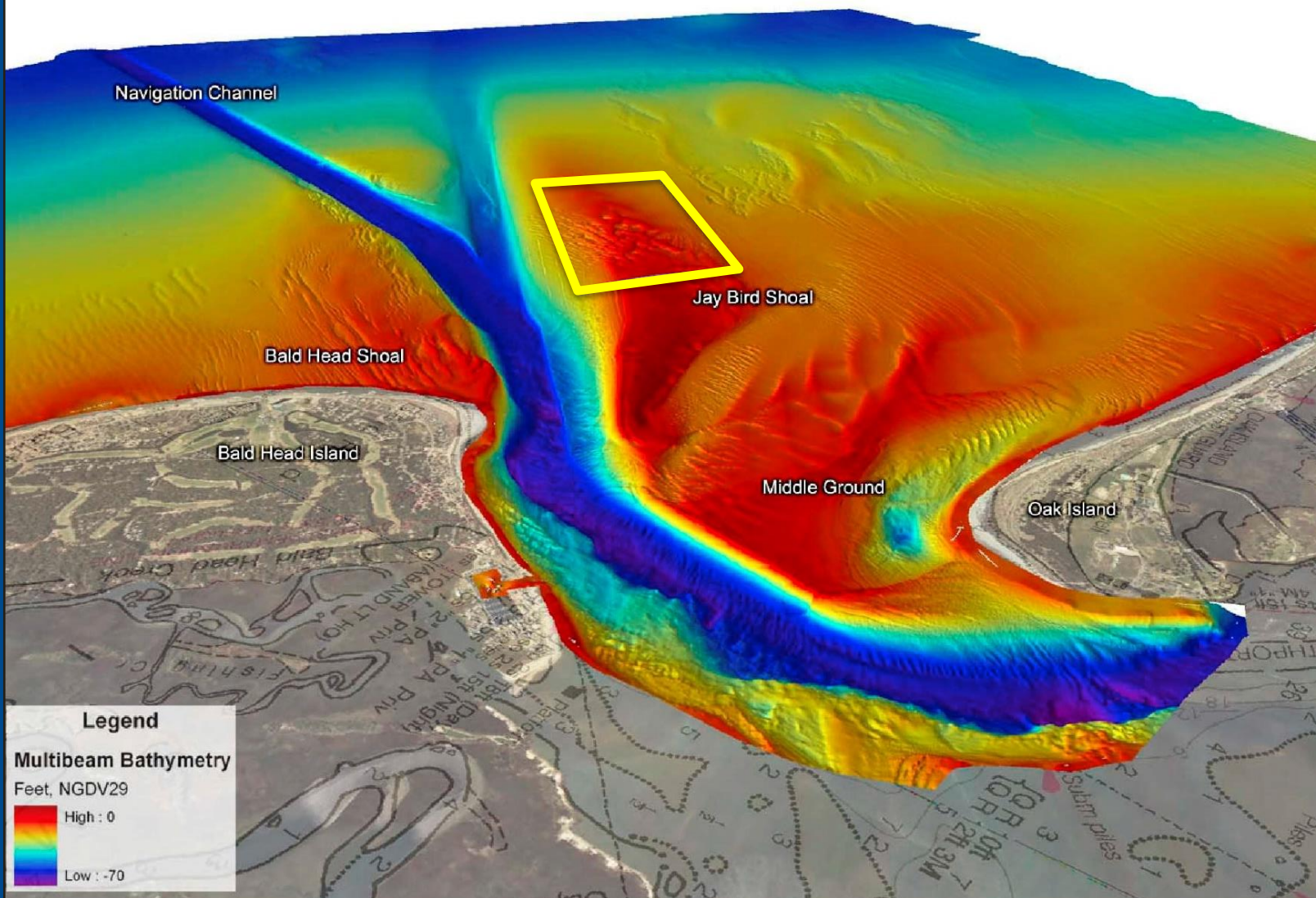
## PROJECT JUSTIFICATION – NEAR TERM

# Dredging Operations at “The Point”

Initial  
Construction  
2000  
Deepening  
Project



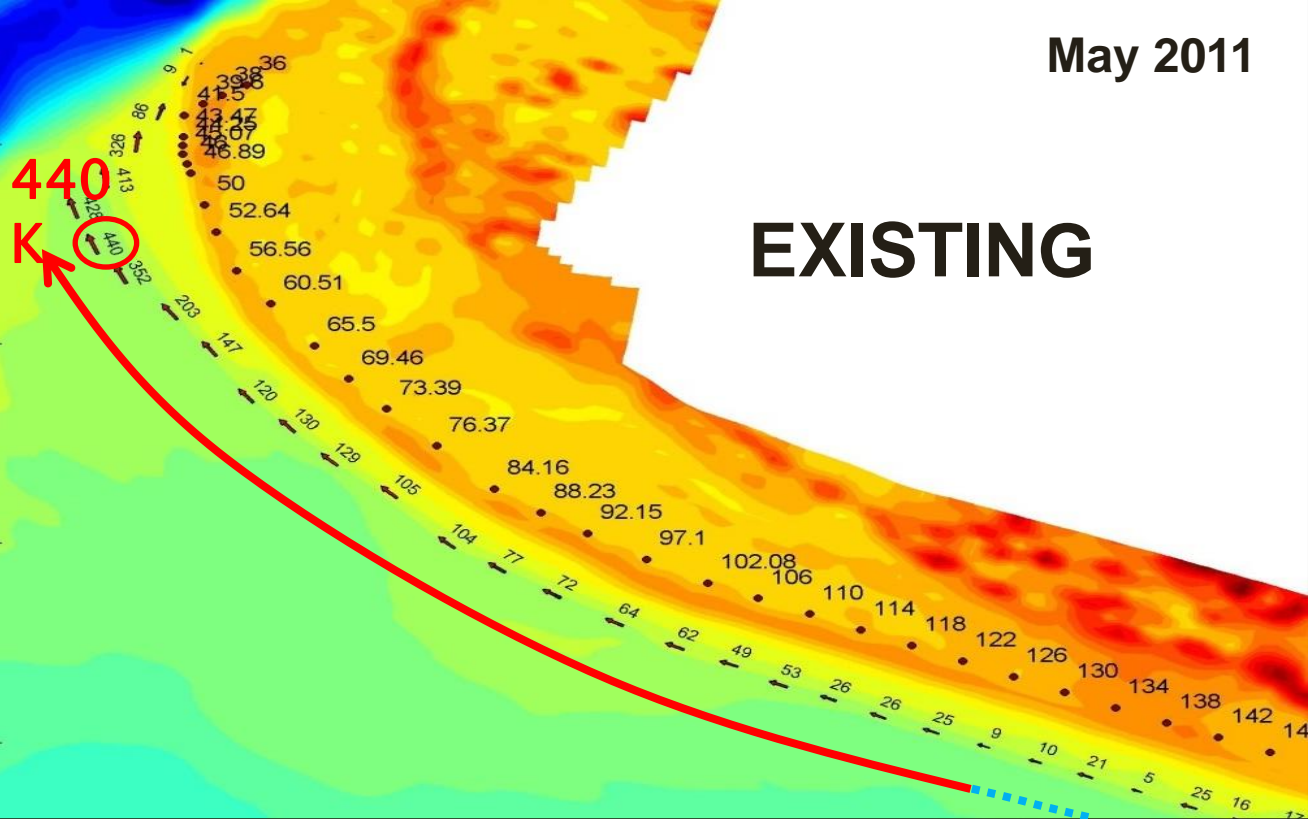




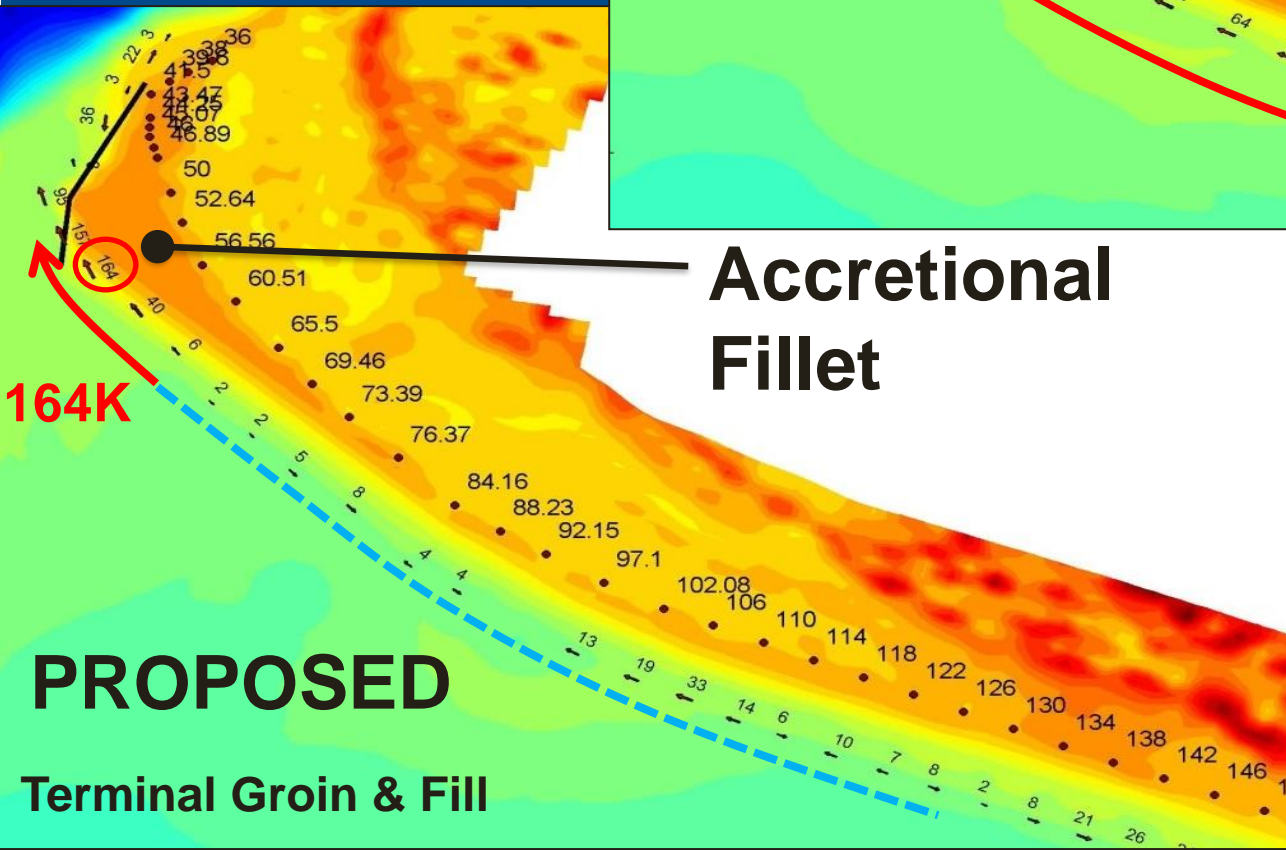
# Sediment Transport Potential (cy/yr)

May 2011

**EXISTING**



**Accretional  
Fillet**



**PROPOSED**

**Terminal Groin & Fill**

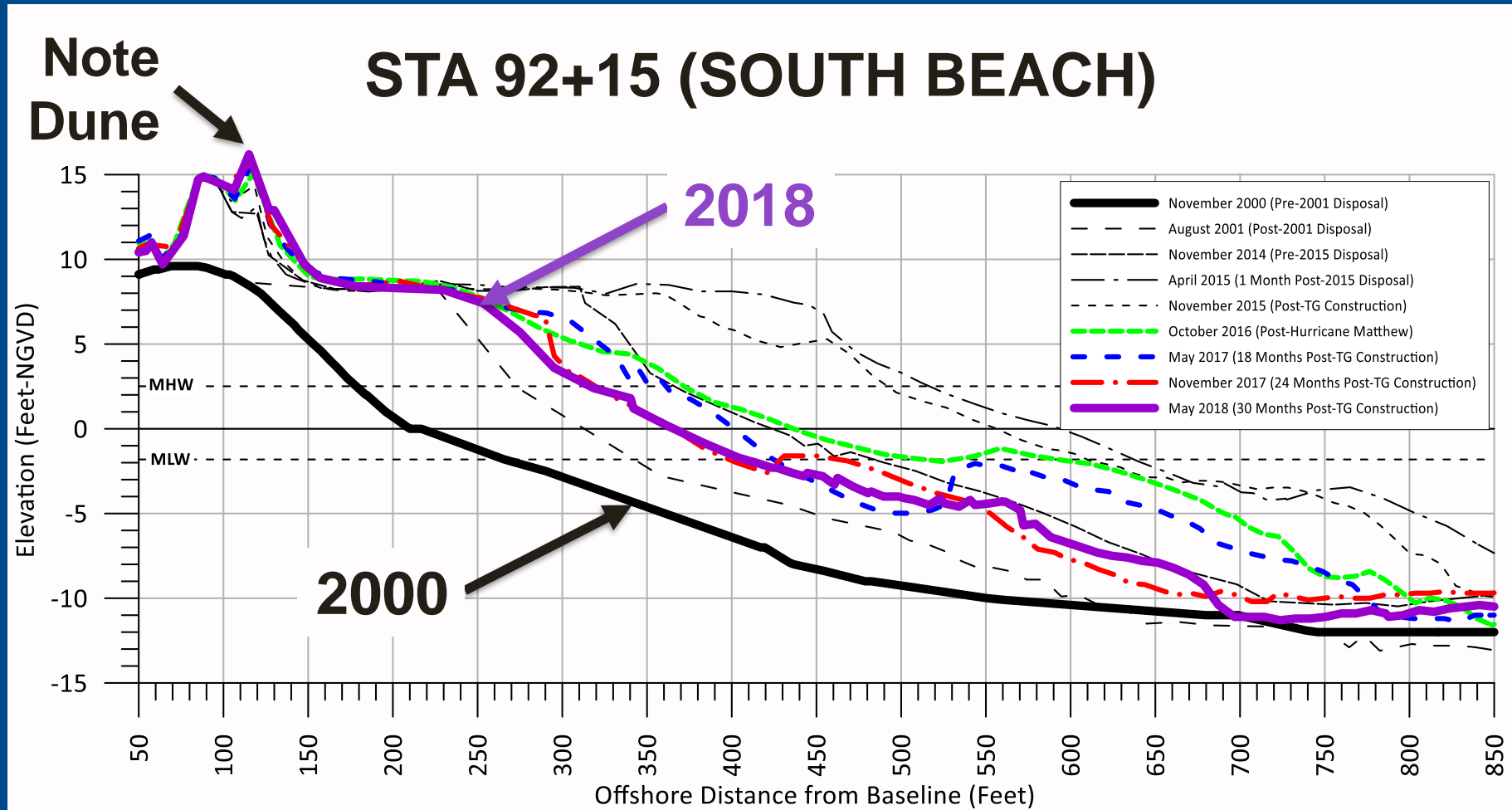






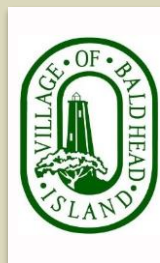


# Black Skimmer & Mourning Warbler Areas



## Benefit of Beach Restoration - Example

# South Beach 1989





**1995  
GROIN  
FIELD**



# Shore & Beach

VOL. 66 • NO. 1 • January 1998  
Journal of the American Shore & Beach Preservation Association

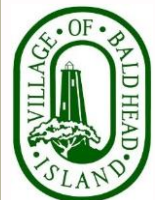




# Hurricane Floyd 1999



# South Beach Erosion 2002



# Hurricane Charley 2004





# Winter 2004



# Corps Channel Maintenance 2004-05



# Corps Channel Maintenance 2004-05

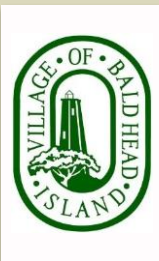




# Severity of Erosion at The Point driven by the federal navigation channel:

- Channel maintenance dredging
- Village private nourishment projects
- Installation of groin field, and
- Long-term stability with Terminal Groin.

“Causal relationship” identified in 1989 Report...



**LOOKING EAST**

**FILL  
BERM**

**South Beach – Looking West (2-March-2021)  
Federal Beach Disposal  
(Under Construction)**





**Dredge in Channel**



**South Beach – Looking West (2-March-2021)  
Federal Beach Disposal**





# Benefit of Structures



**Sand Tube Groin Field  
(8-August-2018)**







# Sand Tube Groin Field (9-May-2018)





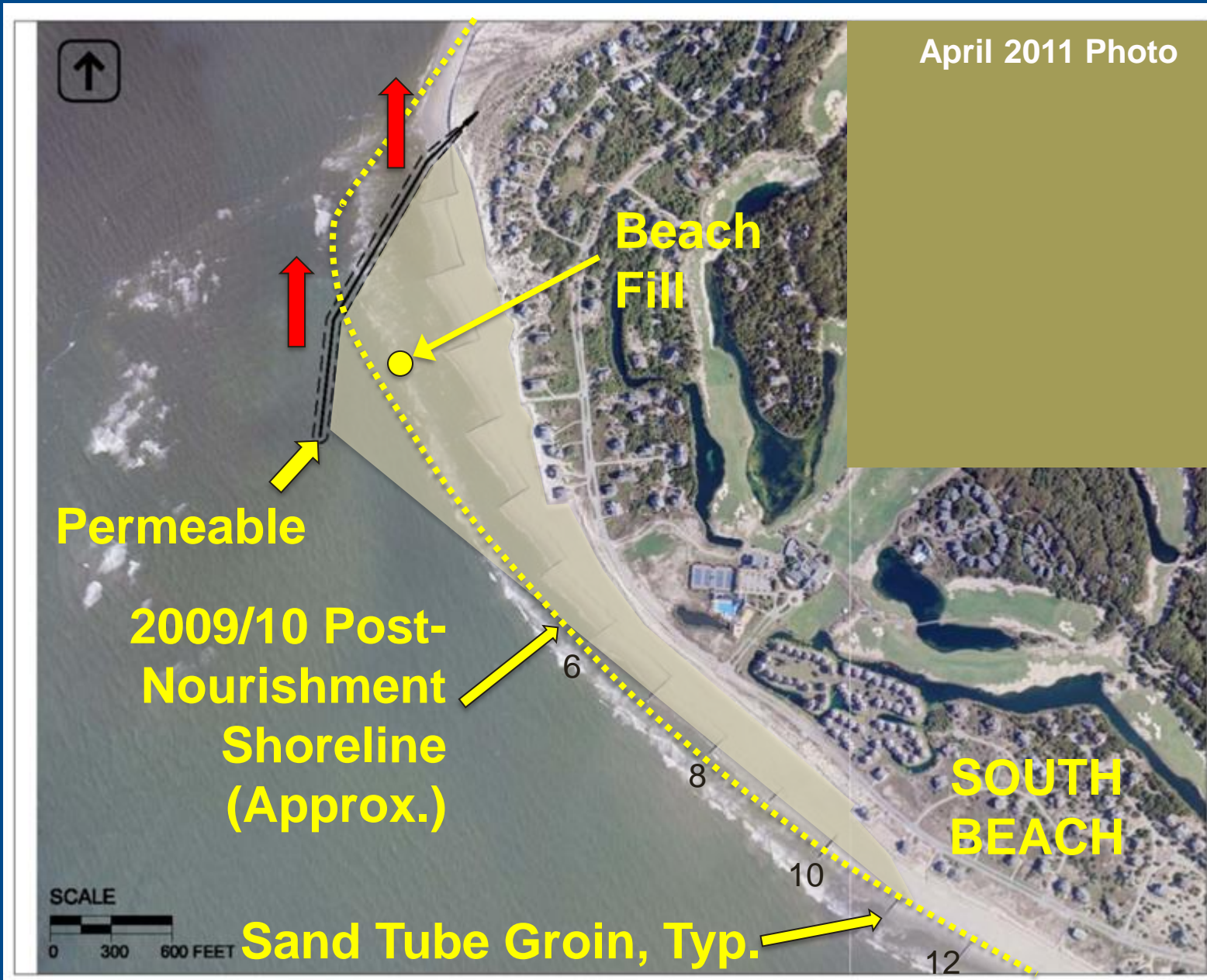


# Sand Tube Groin Field Construction (6-February-2005)





# Conceptual Terminal Groin



# VBHI - TERMINAL GROIN JUSTIFICATION / GOAL

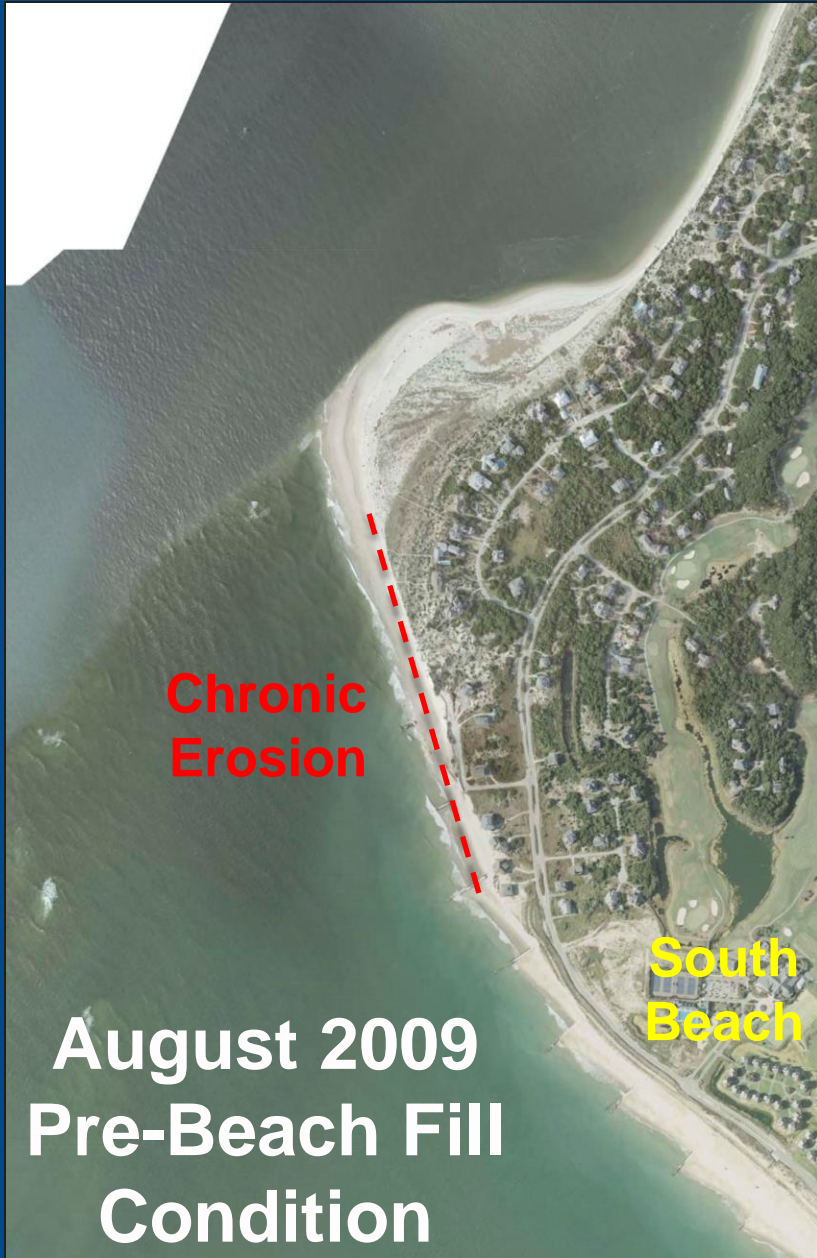
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- Reduce navigation project impacts,
- Reduce annual sand losses from beach nourishment and beach disposal projects,
- Provide a “template” for shoreline realignment conducive to reducing the rates of littoral transport.





# TERMINAL GROIN





# EXISTING CONDITIONS (NOV. 2021)





**ATLANTIC OCEAN**

**● END OF STRUCTURE (1,300 FT)**

**CAPE  
FEAR  
RIVER**

**TIE BACK (DUNE)  
(STA 0+00)**

**23 JUNE 2015**

**Post-Disposal Beach Condition**





STA 8+00

BACKFILLED —●

UNDER CONSTRUCTION

19 AUGUST 2015





# Terminal Groin (8-August-2018)







# Terminal Groin (27-January-2022)





# Conclusions:

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- By April 2021 there was about 3 Mcy in the beach/dune system compared to 2001,
- An increasing trend line is indicative of a successful beach restoration project,
- At Bald Head Island, structures are required to reduce sand losses to the inlet/navigation project.



# QUESTIONS?

## CAPE FEAR

