THE WHOLE IS GREATER THAN THE SUM OF ITS PARTS

Leveraging Federal Partnerships and Local Investment to Sustain Oak Island's Coastline

Kent Jackson – Town of Oak Island

10/22/2026

Town of Oak Island
"A Place to Coast" North Carolina

moffatt & nichol



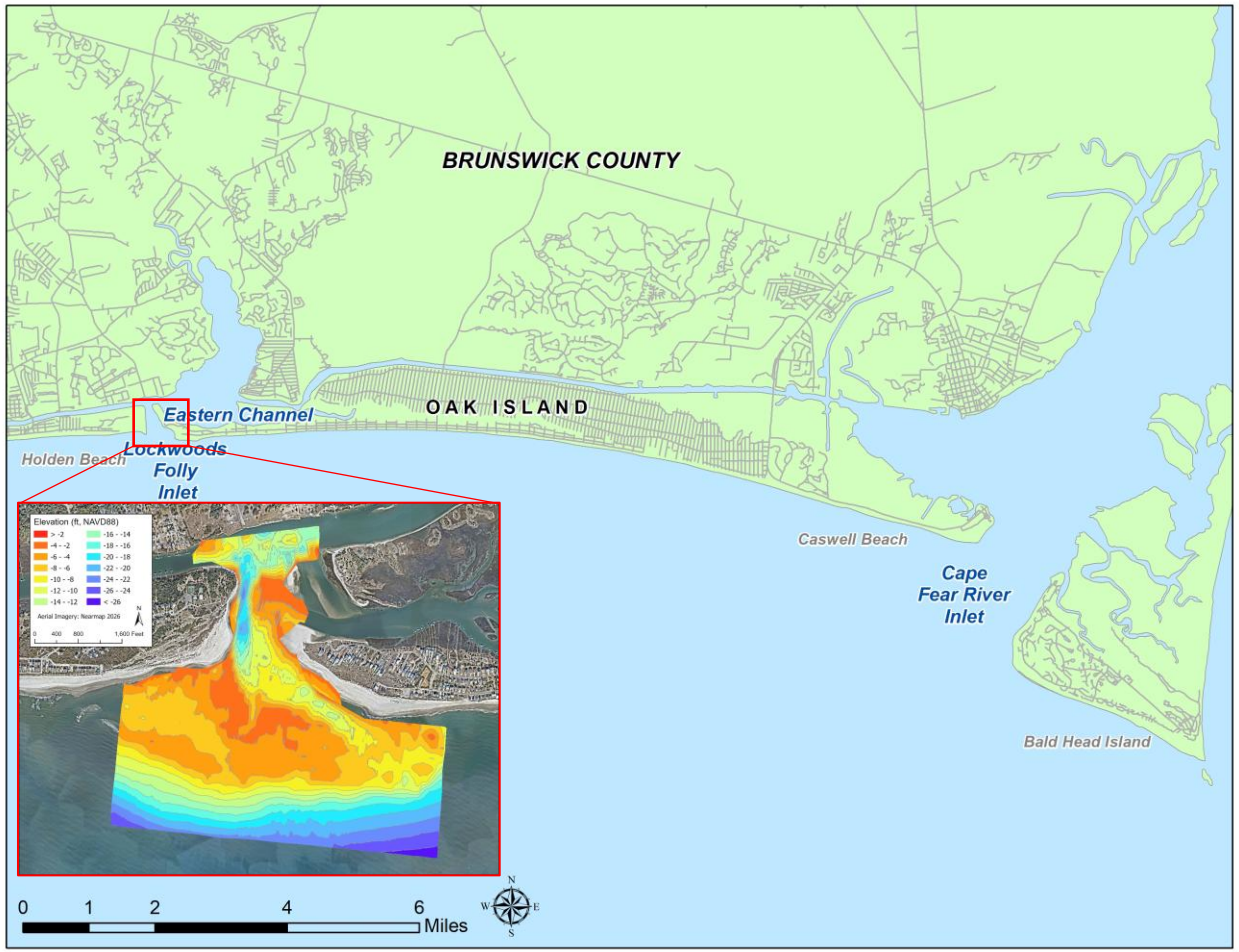


ACT 1: THE CHALLENGE

1

The Challenge

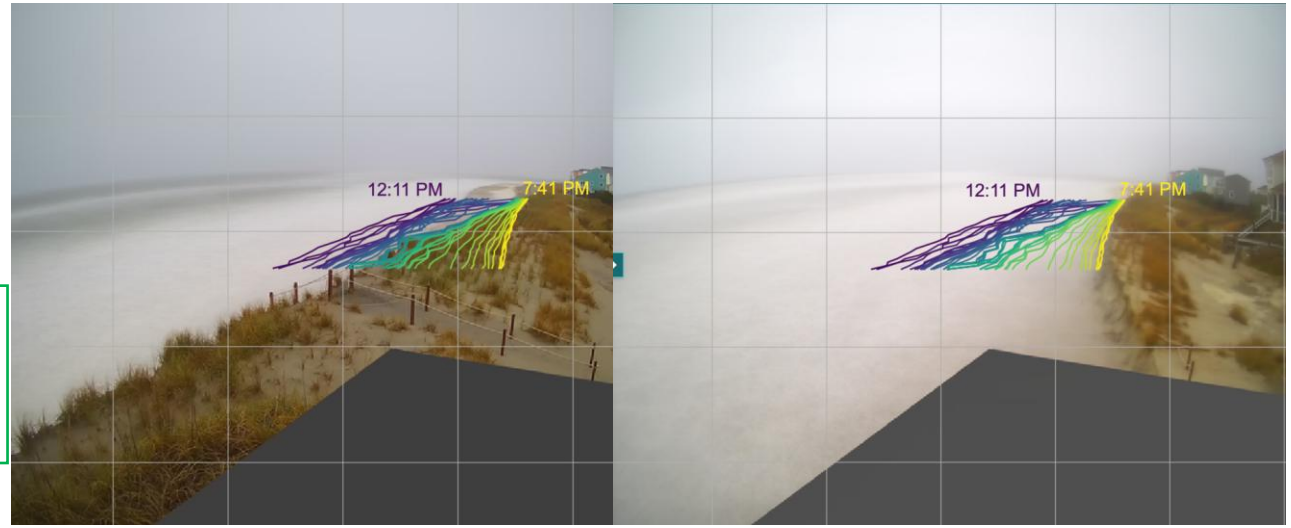
- Simultaneously influenced by Wilmington Harbor, Lockwoods Folly Inlet, the Cape Fear River system, and offshore sediment resources.
- Exposed to chronic erosion, inlet dynamics, storms, and sea level rise.
- Contains critical public infrastructure, evacuation routes, private development, tourism economies, and significant sea turtle habitat.
- Faces increasing competition for limited compatible sand resources and escalating nourishment costs.



Town of Oak Island
"A Place to Coast" North Carolina

The Challenge

- Simultaneously influenced by Wilmington Harbor, Lockwoods Folly Inlet, the Cape Fear River system, and offshore sediment resources.
- Exposed to chronic erosion, inlet dynamics, storms, and sea level rise.
- Contains critical public infrastructure, evacuation routes, private development, tourism economies, and significant sea turtle habitat.
- Faces increasing competition for limited compatible sand resources and escalating nourishment costs.



Credit: SECOORA (Nor'Easter December 2023)



Town of Oak Island
"A Place to Coast" North Carolina

The Challenge

- Simultaneously influenced by Wilmington Harbor, Lockwoods Folly Inlet, the Cape Fear River system, and offshore sediment resources.
- Exposed to chronic erosion, inlet dynamics, storms, and sea level rise.
- Contains critical public infrastructure, evacuation routes, private development, tourism economies, and significant sea turtle habitat.
- Faces increasing competition for limited compatible sand resources and escalating nourishment costs.

Year	Loggerhead Nests
2026	163
2025	77
2024	79
2023	133
2022	139
2021	80
2020	96
2019	172
2018	51
2017	90
2016	115
2015	101



Credit: Oak Island Sea Turtle Protection Program



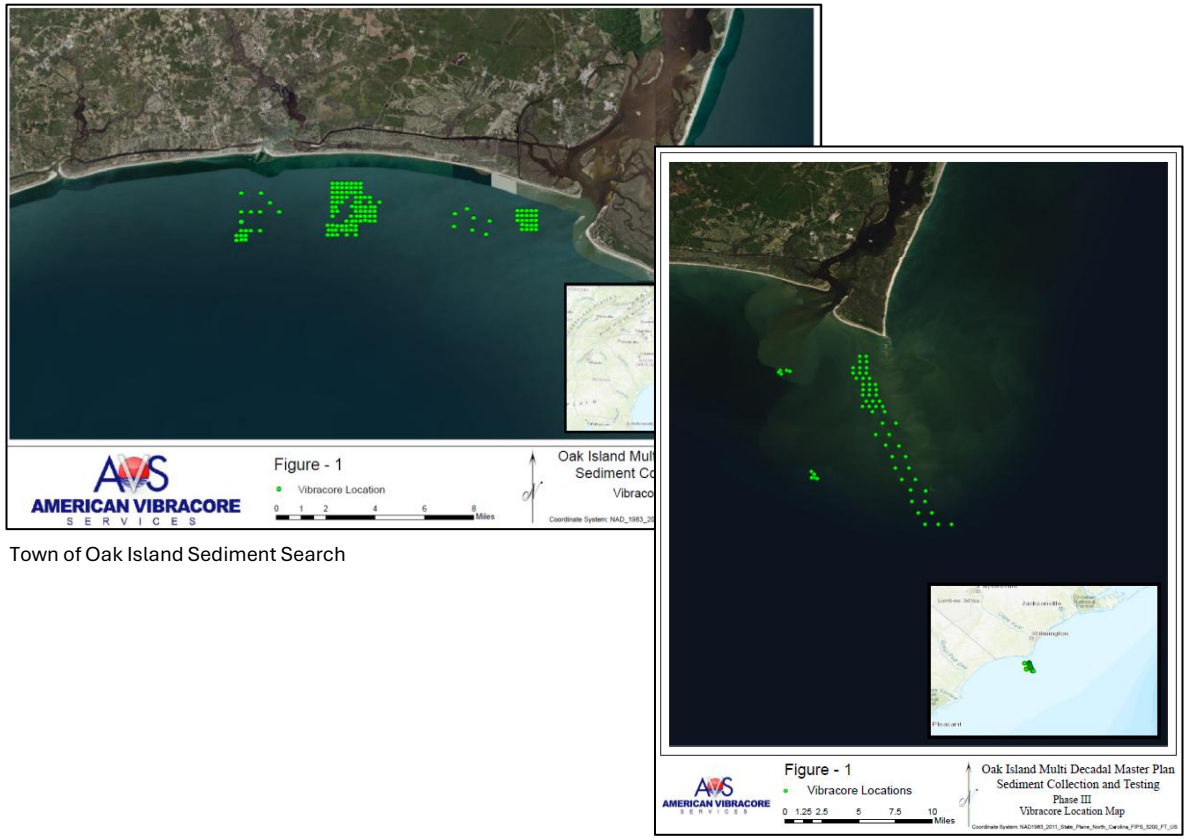
Post Isaias 2020: Infrastructure vulnerability



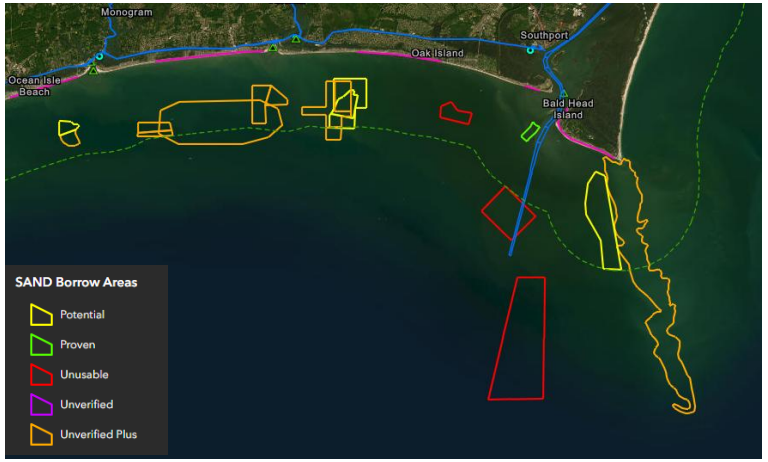
Town of Oak Island
"A Place to Coast" North Carolina

The Challenge

- Simultaneously influenced by Wilmington Harbor, Lockwoods Folly Inlet, the Cape Fear River system, and offshore sediment resources.
- Exposed to chronic erosion, inlet dynamics, storms, and sea level rise.
- Contains critical public infrastructure, evacuation routes, private development, tourism economies, and significant sea turtle habitat.
- Faces increasing competition for limited compatible sand resources and escalating nourishment costs.



Town of Oak Island Sediment Search



Credit: USACE SAND Dashboard

Town of Oak Island
"A Place to Coast" North Carolina

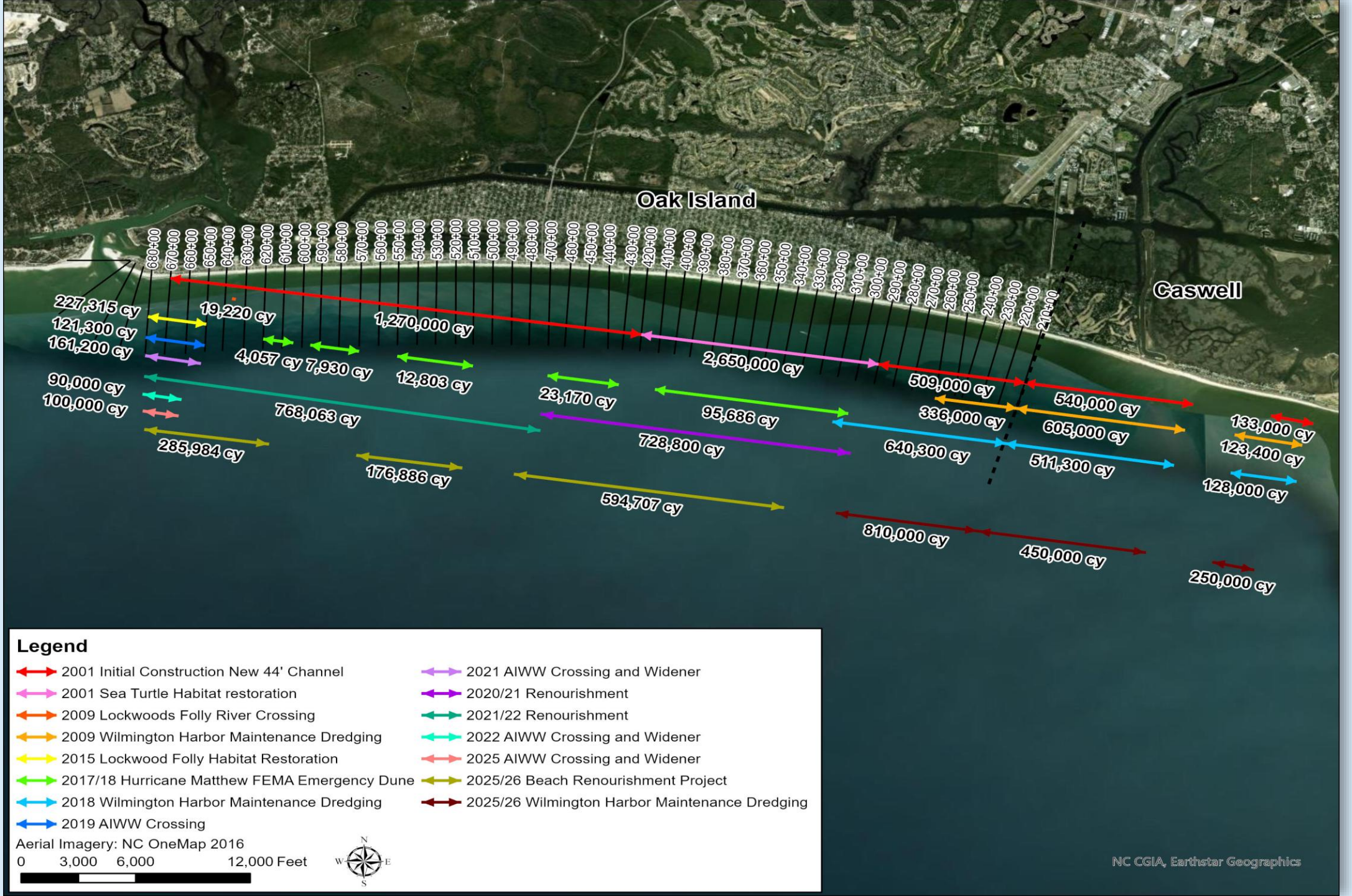
The Challenge

- The traditional model of "one project every decade" is becoming increasingly difficult due to cost, resource limitations, environmental constraints, and permitting complexity.





Town of Oak Island
"A Place to Coast" North Carolina


Oak Island
Caswell
680+00
670+00
660+00
650+00
640+00
630+00
620+00
610+00
600+00
590+00
580+00
570+00
560+00
550+00
540+00
530+00
520+00
510+00
500+00
490+00
480+00
470+00
460+00
450+00
440+00
430+00
420+00
410+00
400+00
390+00
380+00
370+00
360+00
350+00
340+00
330+00
320+00
310+00
300+00
290+00
280+00
270+00
260+00
250+00
240+00
230+00
220+00
210+00
227,315 cy
121,300 cy
161,200 cy
19,220 cy
4,057 cy
7,930 cy
1,270,000 cy
12,803 cy
2,650,000 cy
90,000 cy
100,000 cy
768,063 cy
285,984 cy
23,170 cy
95,686 cy
728,800 cy
176,886 cy
594,707 cy
509,000 cy
336,000 cy
640,300 cy
540,000 cy
605,000 cy
511,300 cy
133,000 cy
123,400 cy
128,000 cy
810,000 cy
450,000 cy
250,000 cy
Legend
2001 Initial Construction New 44' Channel
2001 Sea Turtle Habitat restoration
2009 Lockwoods Folly River Crossing
2009 Wilmington Harbor Maintenance Dredging
2015 Lockwood Folly Habitat Restoration
2017/18 Hurricane Matthew FEMA Emergency Dune
2018 Wilmington Harbor Maintenance Dredging
2019 AIWW Crossing
2021 AIWW Crossing and Widener
2020/21 Renourishment
2021/22 Renourishment
2022 AIWW Crossing and Widener
2025 AIWW Crossing and Widener
2025/26 Beach Renourishment Project
2025/26 Wilmington Harbor Maintenance Dredging
Aerial Imagery: NC OneMap 2016
0 3,000 6,000 12,000 Feet
N
W
E
S
NC CGIA, Earthstar Geographics

Beyond Beach Nourishment: Leveraging Federal Partnerships, Sediment Resources, and Local Investment to Sustain Oak Island's Coastline

North Carolina Beach, Inlet, and Waterway Association (NCBIWA) Fall Conference

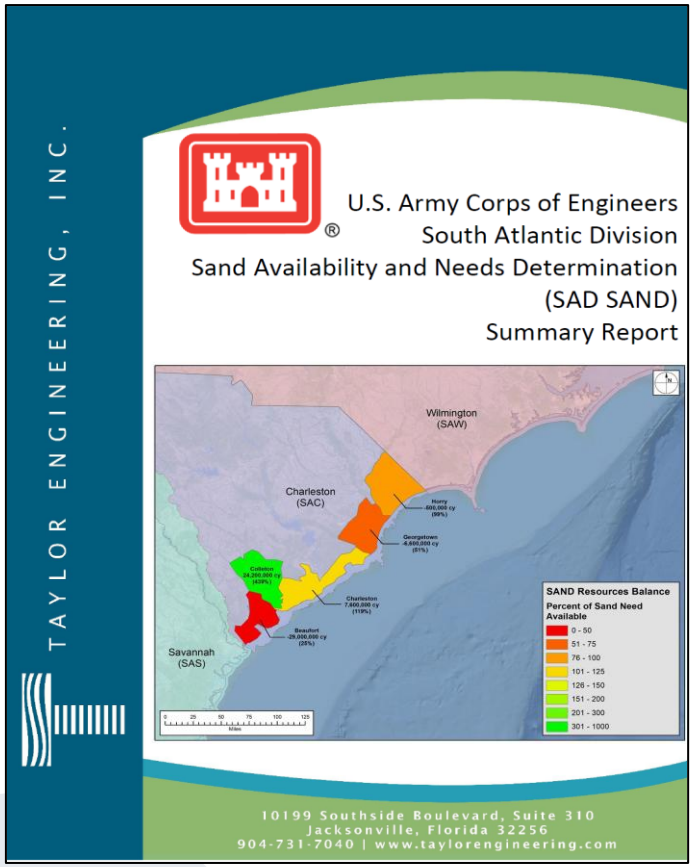
Doug Piatkowski, Marine Biologist, Sand Resources Branch

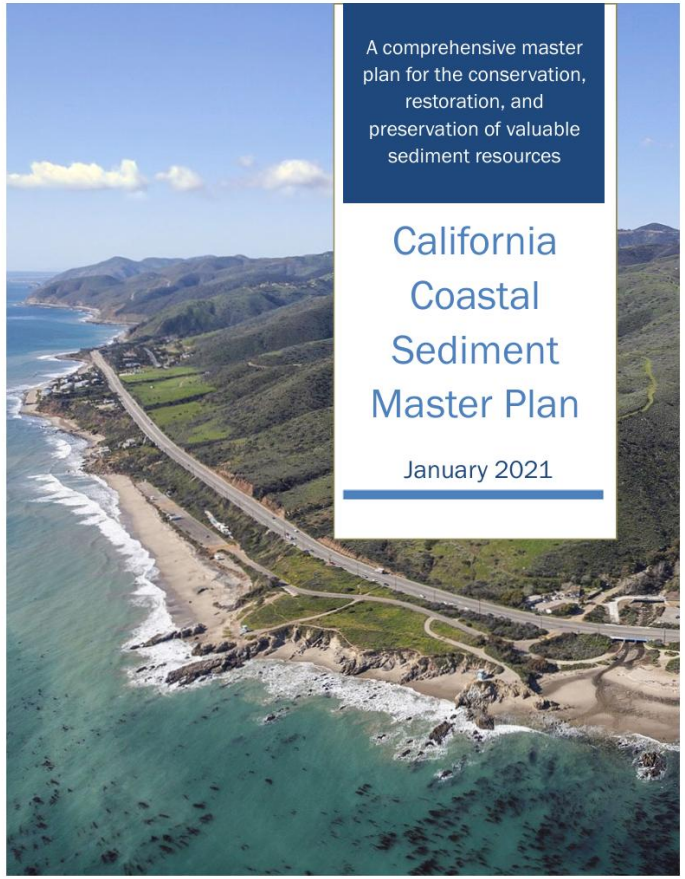
October 22, 2026

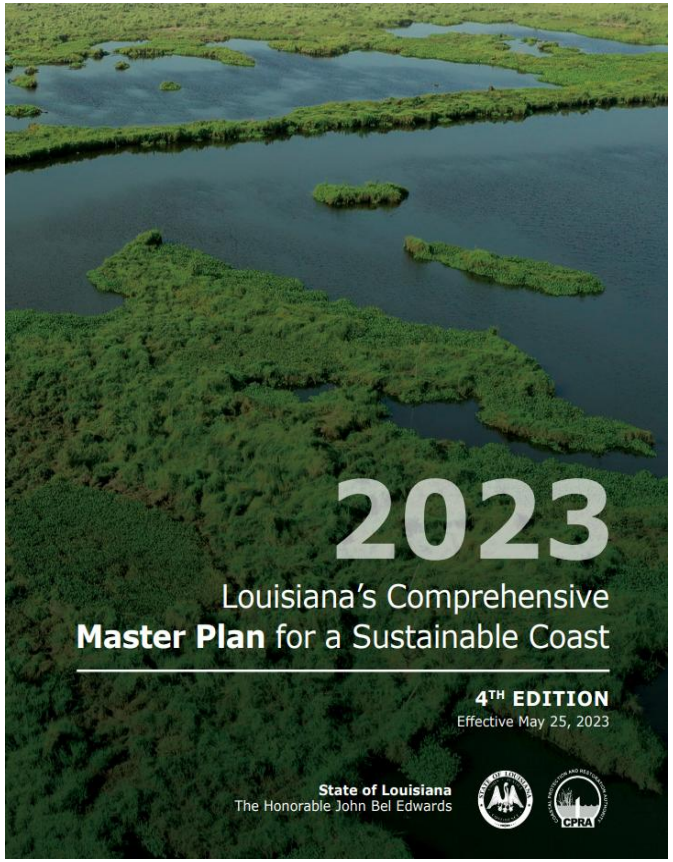
Where is the Sand? NC's Growing Supply Challenge



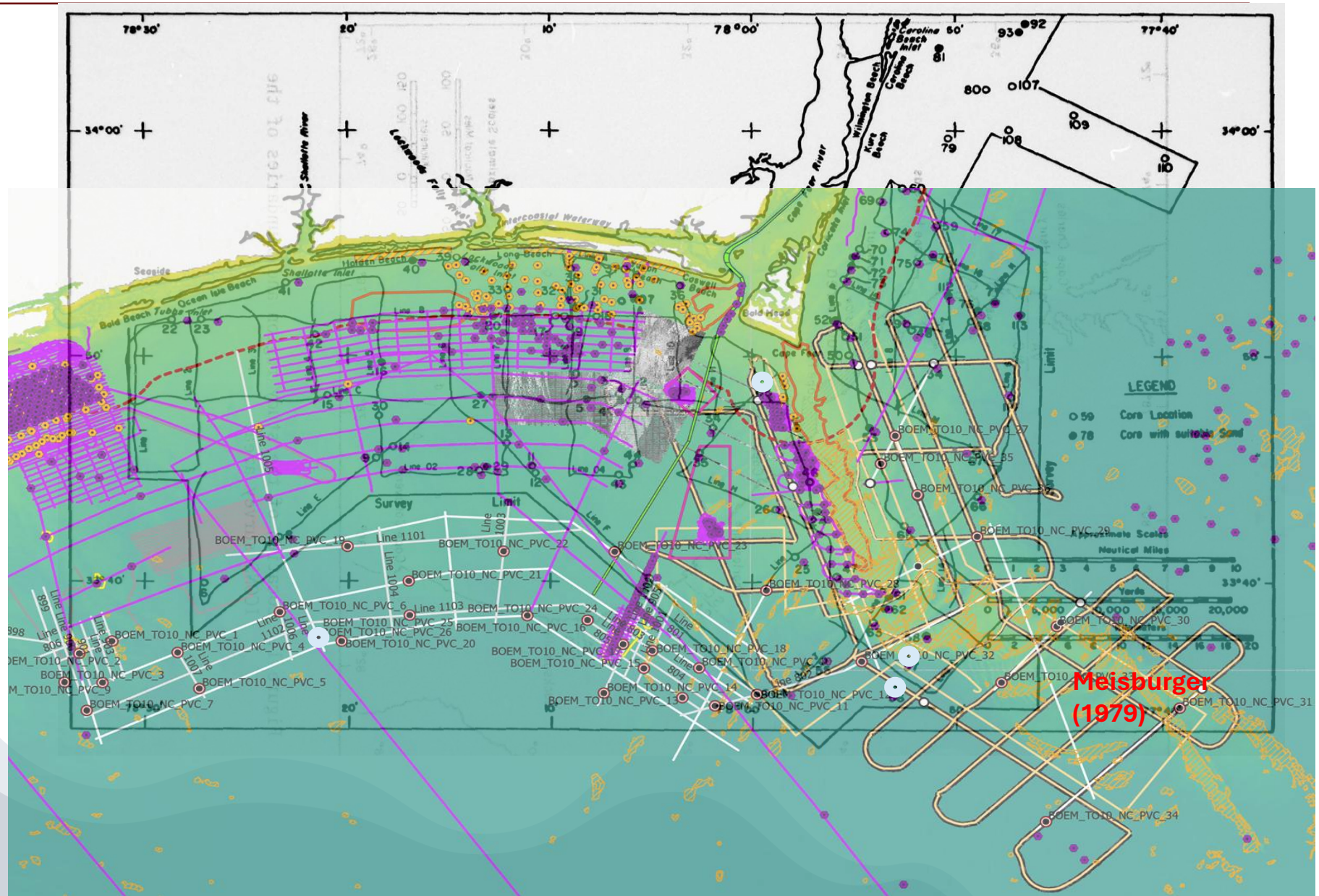
Shoring up America's Beaches: Sand is Land





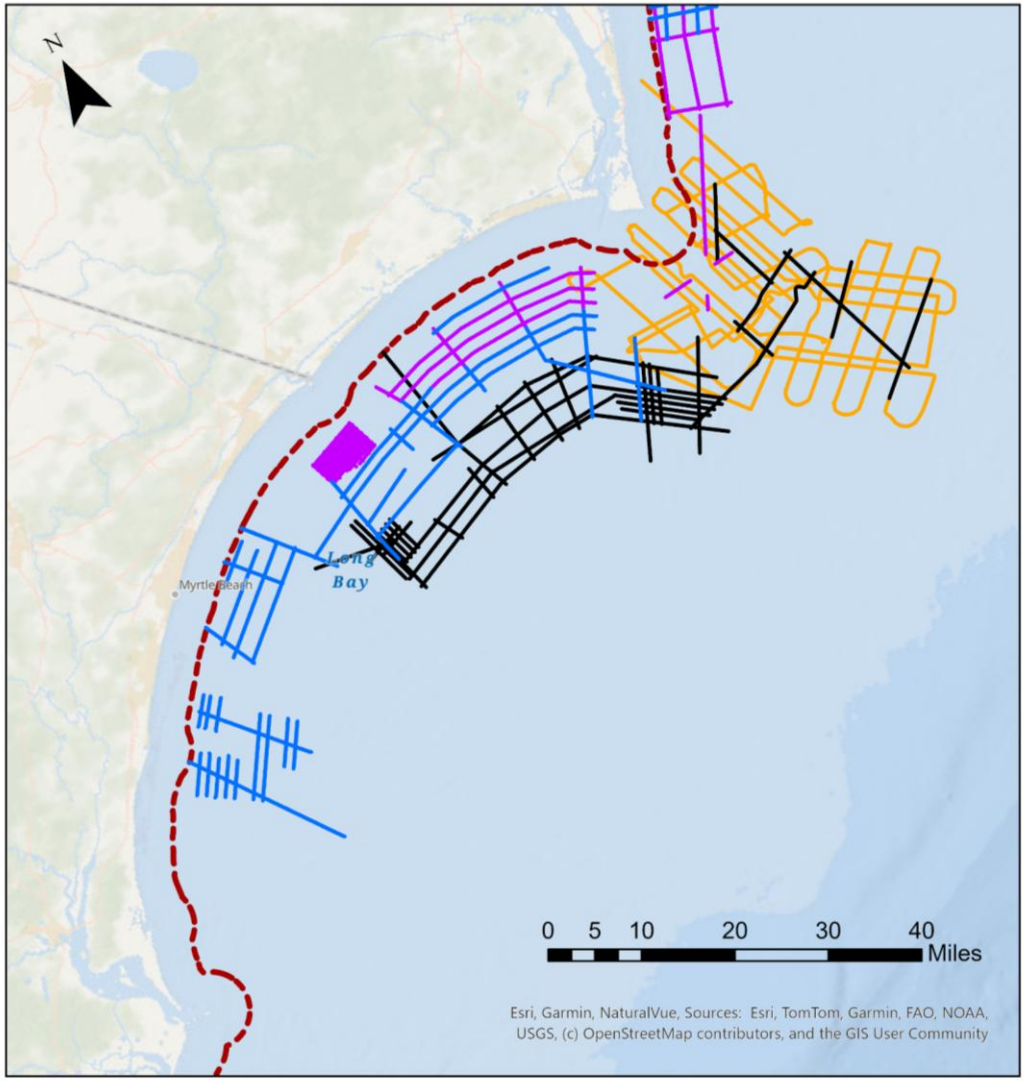


Where is the Sand? Over 50 Years of Data Acquisition

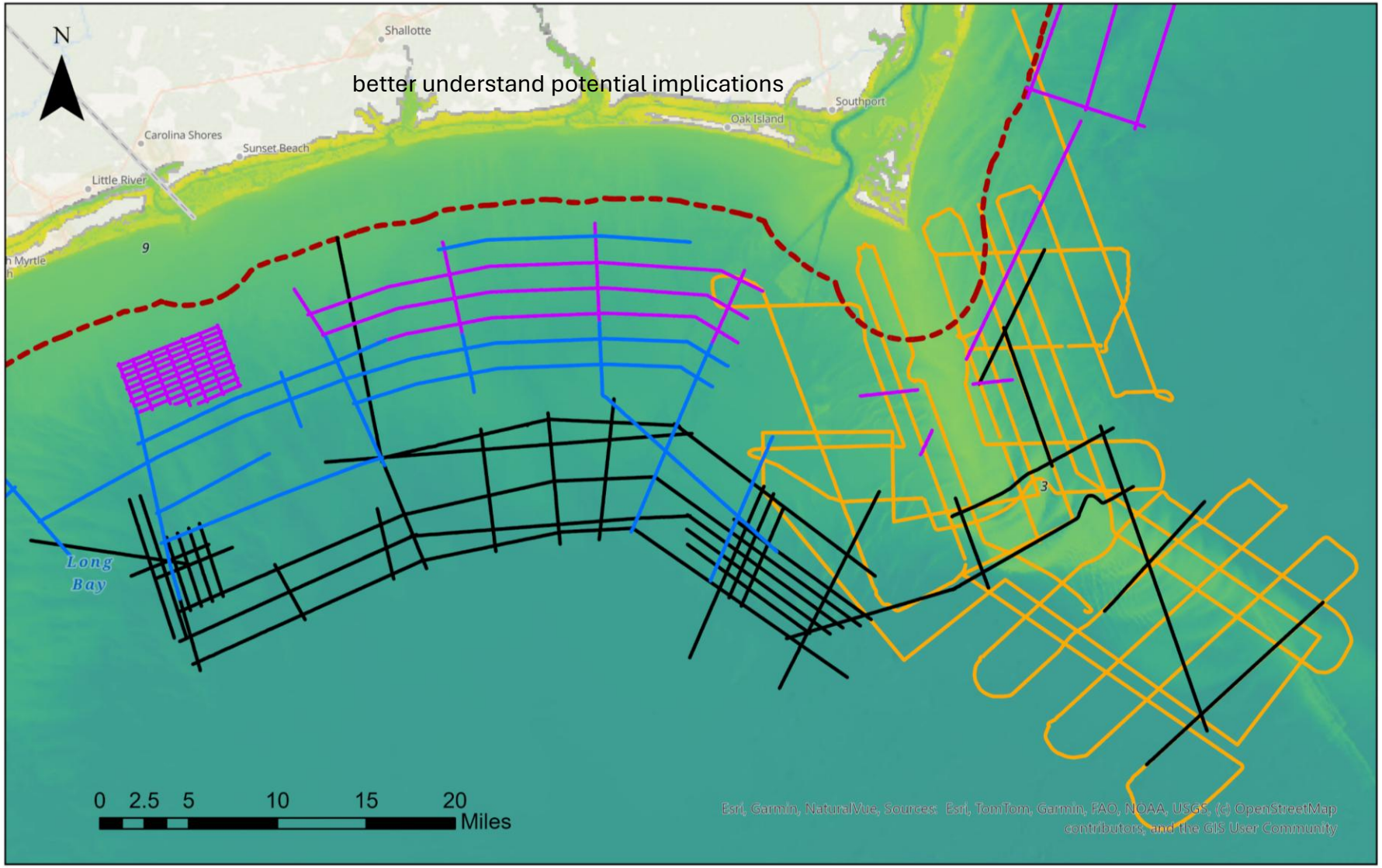


Where is the Sand? Long Bay Data Acquisition (2015-2026)

- High Sand Need, Low or Complex Supply Region
- Long-Term Strategic Investments
  - 2015 Atlantic Sand Assessment Project (—)
  - 2020 Frying Pan Shoals (FPS) Technical and Stakeholder Workshops
  - 2022 FPS Cooperative Agreement (—)
  - 2022 IDIQ Task Order 1 – Geophysical & Geological Mapping (—)
  - 2024 Long Bay Cooperative Agreement
  - 2024 IDIQ Task Order 10 – Geophysical & Geological Mapping (—)
- Sand identification by Town of Oak Island



What did TO 10 Find? Data Release in Spring 2027



- Appraised resources identified in TO1 (including OSOKI)
- Evaluated if western and eastern resources were related
- Collected FPS cores for UNCW Cooperative Agreement

The Value of SAND



COMMUNITY
ECONOMY
ENVIRONMENT

Douglas.Piatkowski@boem.gov



THE WHOLE IS GREATER THAN THE SUM OF ITS PARTS

Leveraging Federal Partnerships and Local Investment to Sustain Oak Island's Coastline

Brandon Grant – Moffatt & Nichol

10/22/2026



Town of Oak Island
"A Place to Coast" North Carolina

moffatt & nichol



ACT 3: 2025/2026 BEACH RENOURISHEMENT PROJECT

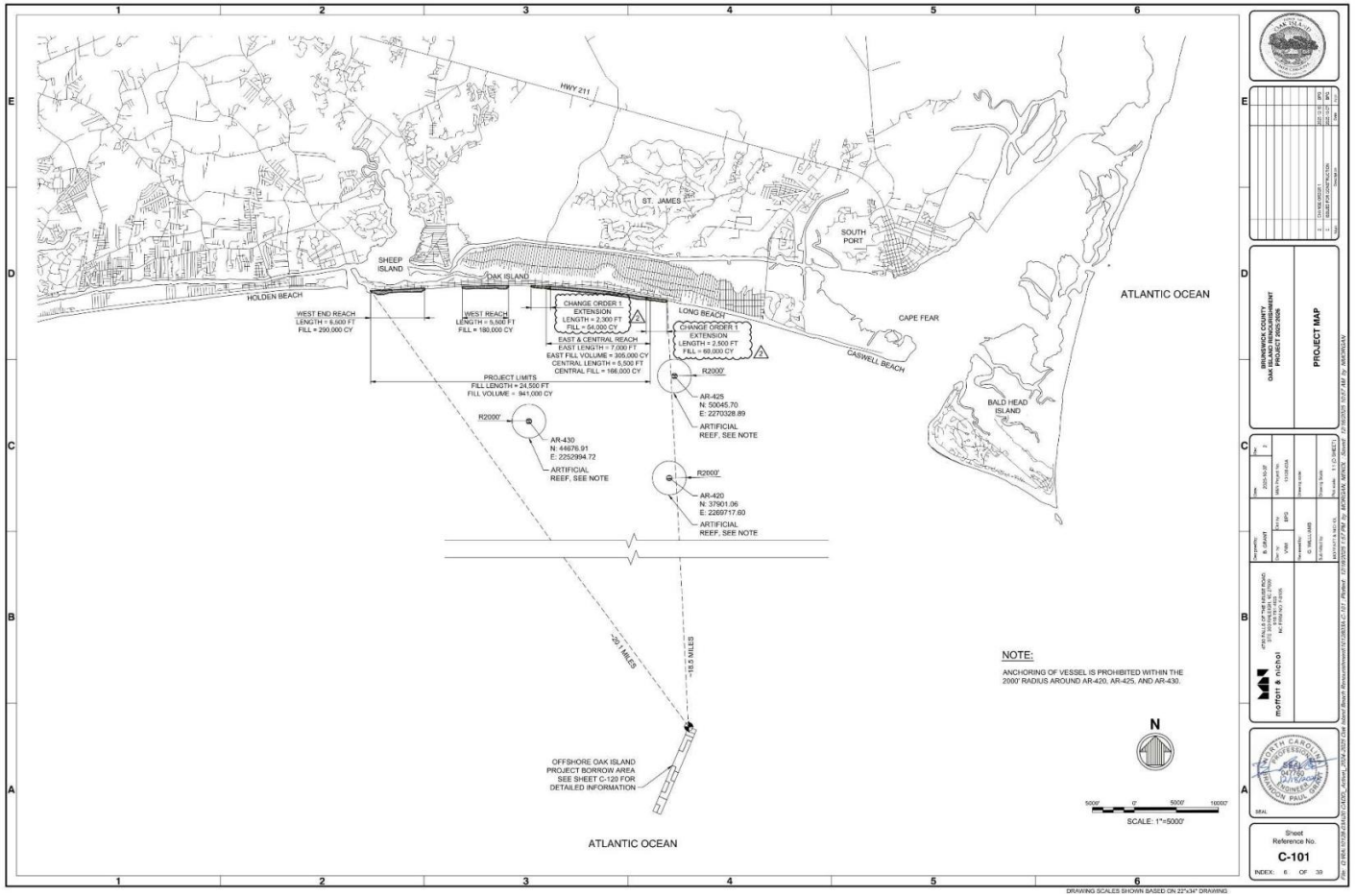
3

2025/2026 Beach Renourishment Project: 2026 ASBPA Best Restored Beach Award Recipient!

- 1,057,577 cy of beach compatible sand placed
- Restored Level of Protection & provided advance fill to counteract long-term erosion
- Use of Federally managed offshore sand resource
- Project adaptation to rising construction costs through value engineering
- Aligning project timing with ongoing federal beneficial use efforts
- Environmental compliance across Federal and State permits



Nourishment Project Objective



10-year storm protection objective

6-year nourishment interval

Advance fill to address background erosion

Beach and dune protection for oceanfront infrastructure

Habitat and recreational beach benefits

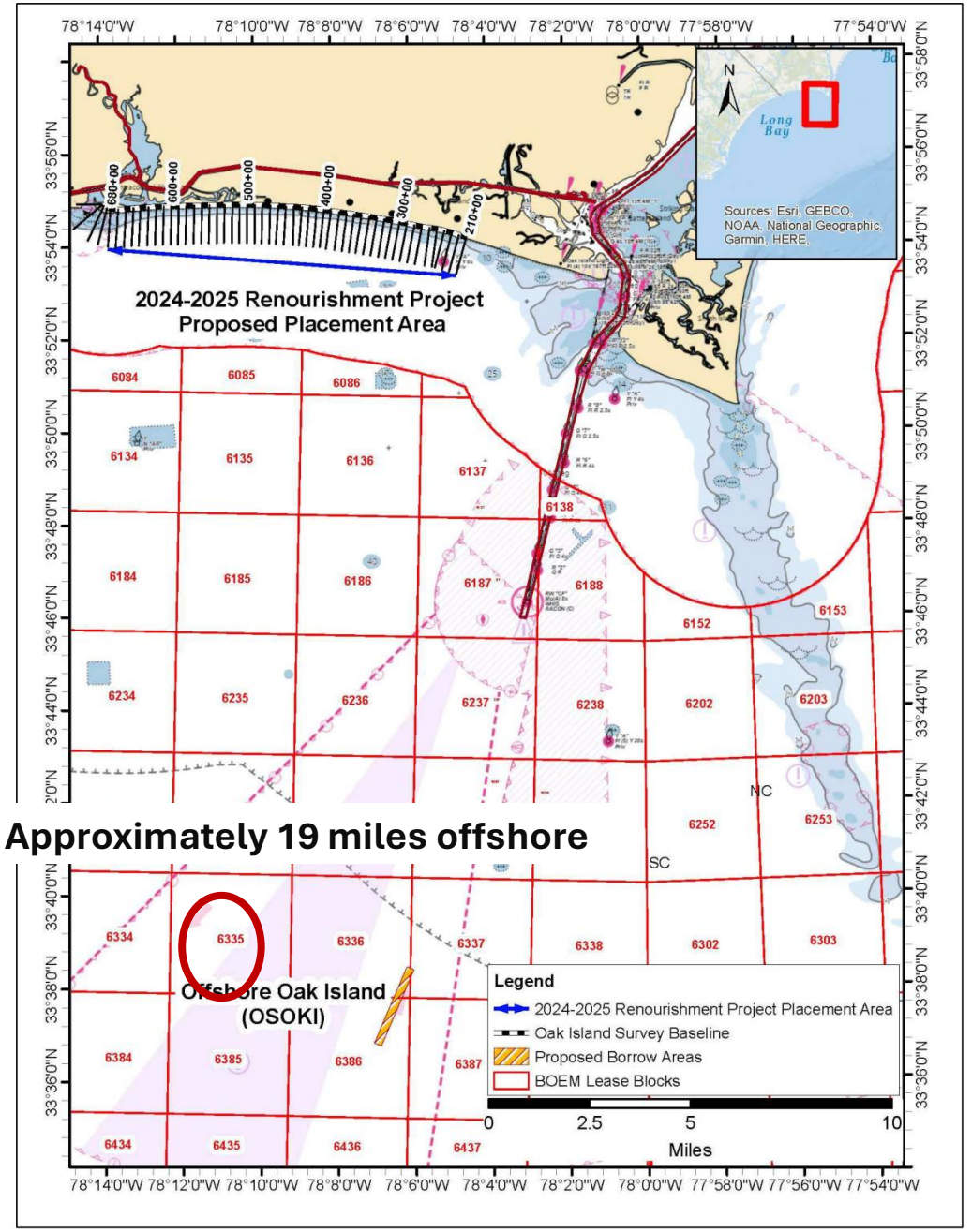
2025/2026 Renourishment Project

OSOKI borrow source and resource coordination

A collaboration opportunity during the Town funded sand search

- During the offshore sand search, ongoing coordination with BOEM made the project team aware of BOEM geotechnical investigations in the region.
- Some BOEM cores indicated potentially beach-compatible material offshore of Oak Island.
- Working collaboratively with BOEM, the Town and project team built on those data and focused additional investigation in the area.
- The coordinated investigation ultimately helped identify and characterize the offshore borrow source used for the 2025/2026 renourishment project.

The partnership created value before permitting: it helped the Town find the sand resource that made the project possible.



2025/2026 Renourishment Project

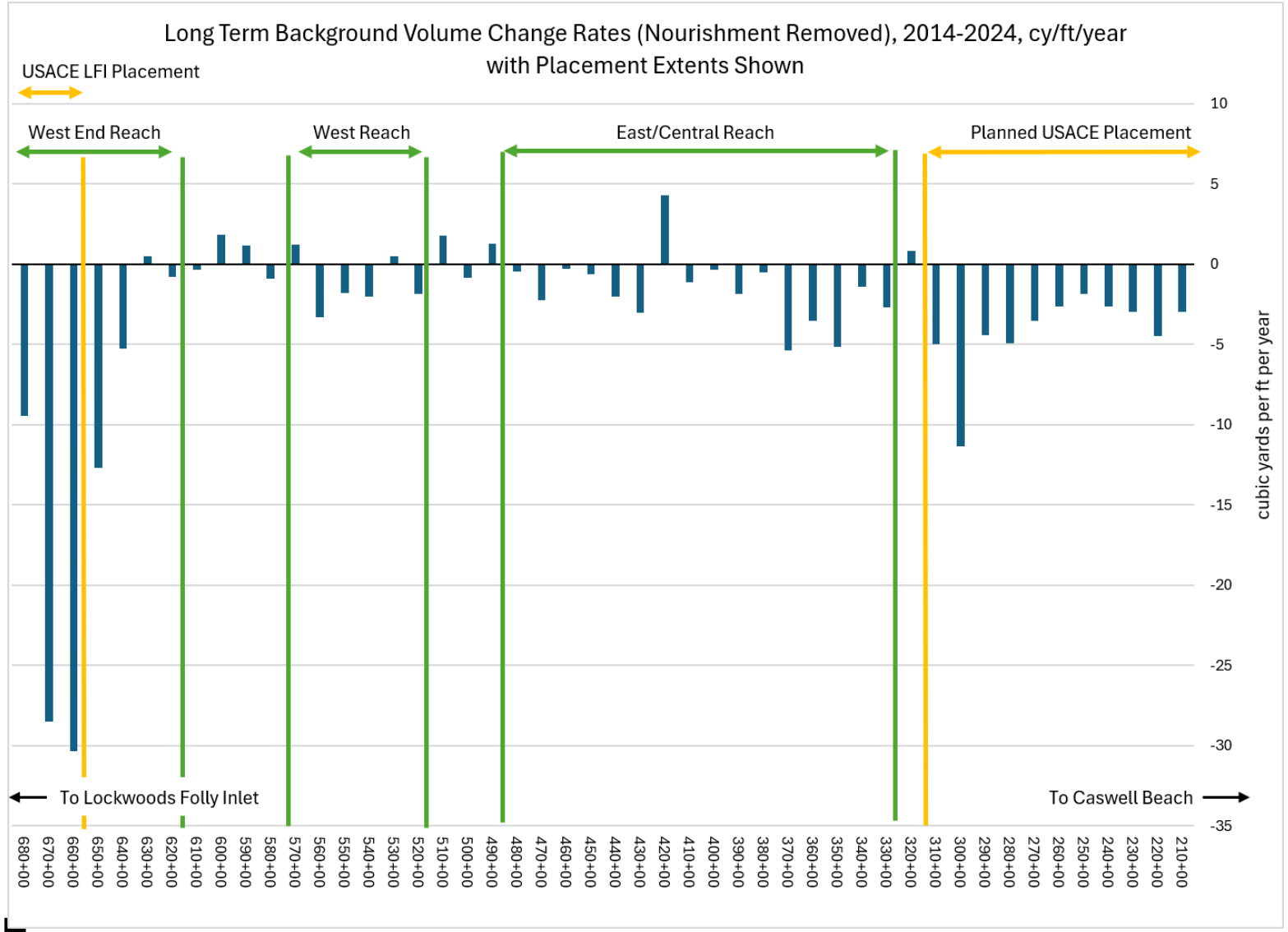
Redesign and negotiation brought the project within budget

Value engineering focused the nourishment plan on vulnerable shoreline reaches

NOV 2024 BIDS	MAY 2025 REBID	FINAL NEGOTIATED CONTRACT
1,412,300 cy	**941,020 cy**	**1,055,000 cy**
Design volume	Design volume	Final design volume
$39.2–59.5M	**$32.7M**	**$35.77M**
Bid range	Bid range	

Refined placement limits • Prioritized vulnerable reaches • Coordinated USACE placement

Project Alignment and Value Engineering



PRIORITIZE EROSION HOTSPOTS

The largest background losses occur near the western end.

TARGET PLACEMENT

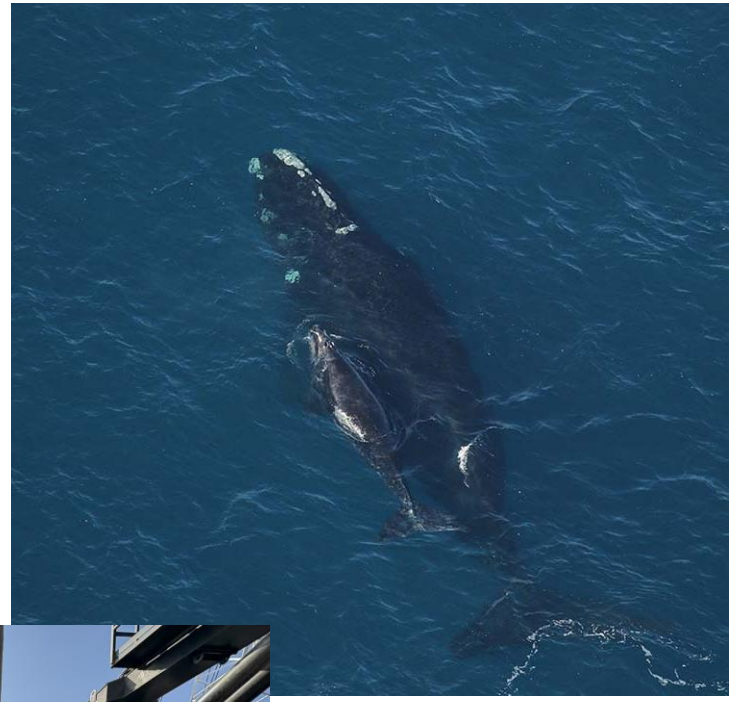
Focus placement to vulnerable locations.

ACCOUNT FOR USACE SAND

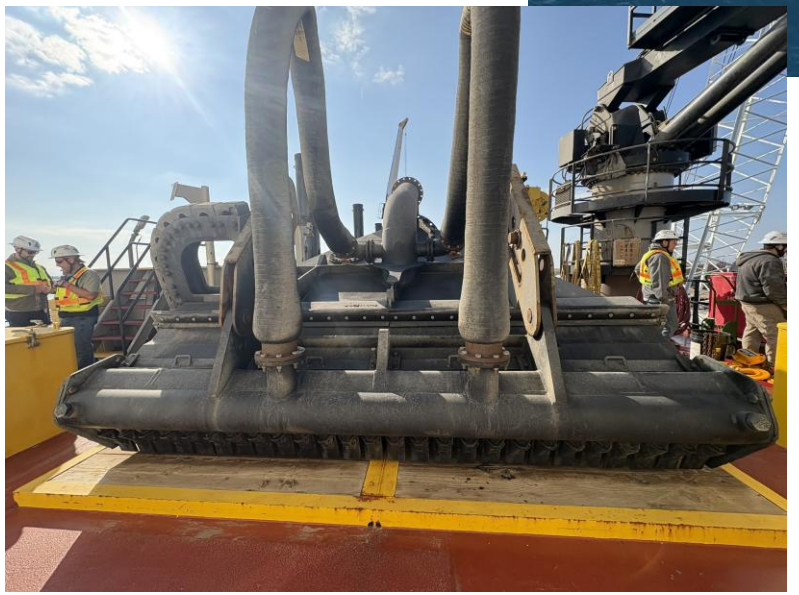
Coordinate with placement at the shoreline ends.

Environmental Compliance

- Vessel speed restrictions to avoid whale encounters
- Use of Environmental Species Observers (ESOs)
- 24-hour protected-species monitoring protocols
- Sand visual inspections daily and testing every 3 days
- Escarpment leveling
- Dredge tracking to maintain borrow area restrictions



North Atlantic Right Whale (NARW) calving season



Draghead deflector on dredge

Key Takeaways

Collaboration creates value early

Marine Minerals Administration (MMA) data and interagency relationships helped identify the sand resource.

Town partnership makes tradeoffs actionable

Shared priorities supported redesign and an affordable construction scope.

Value engineering retains the protection objective

Target placement using erosion patterns and complementary USACE sand.

The project succeeded not because there was abundant funding, but because every available resource was strategically leveraged