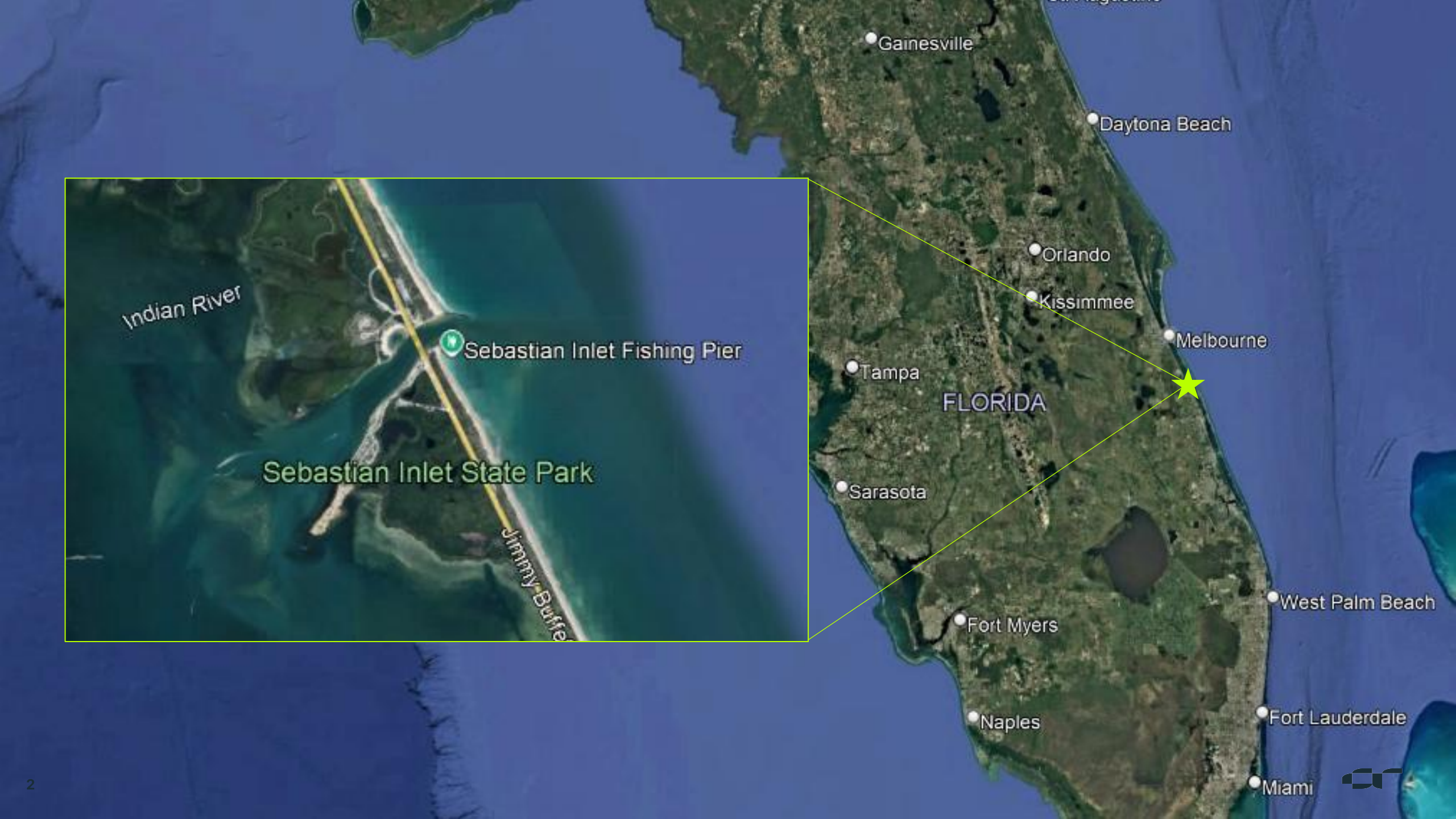
Sebastian Inlet Sand-Trap Bypassing: Volumes and a Practical Supplementation

AtkinsRéalis

2/5/26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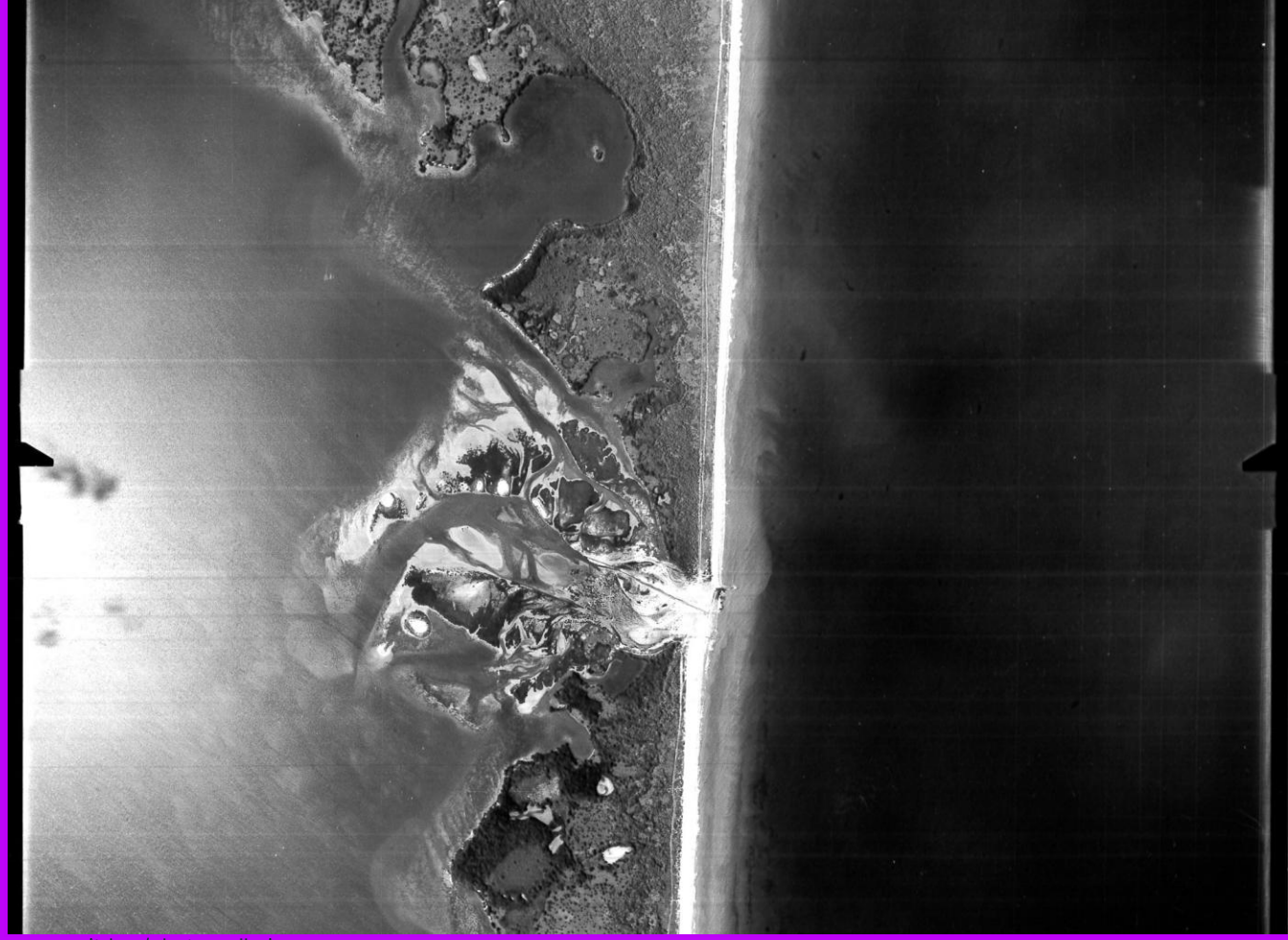
Sebastian Inlet Fishing Pier
Sebastian Inlet State Park
Jimmy Buffe

History of Sebastian Inlet

- Stabilized 1918
- Opened and closed until 1949 due to storms
- Narrow cross section & strong currents = rapid shoaling



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Background

2000

FDEP sets annual SID target bypass requirement of 70,000 CY

2008

FDEP increases requirement to 90,000 CY

2023

Inlet Management Plan updated for 75,000 CY bypassing requirement

Inlet Survey Domain

Summer 2023 survey completed by Morgan and Ekland

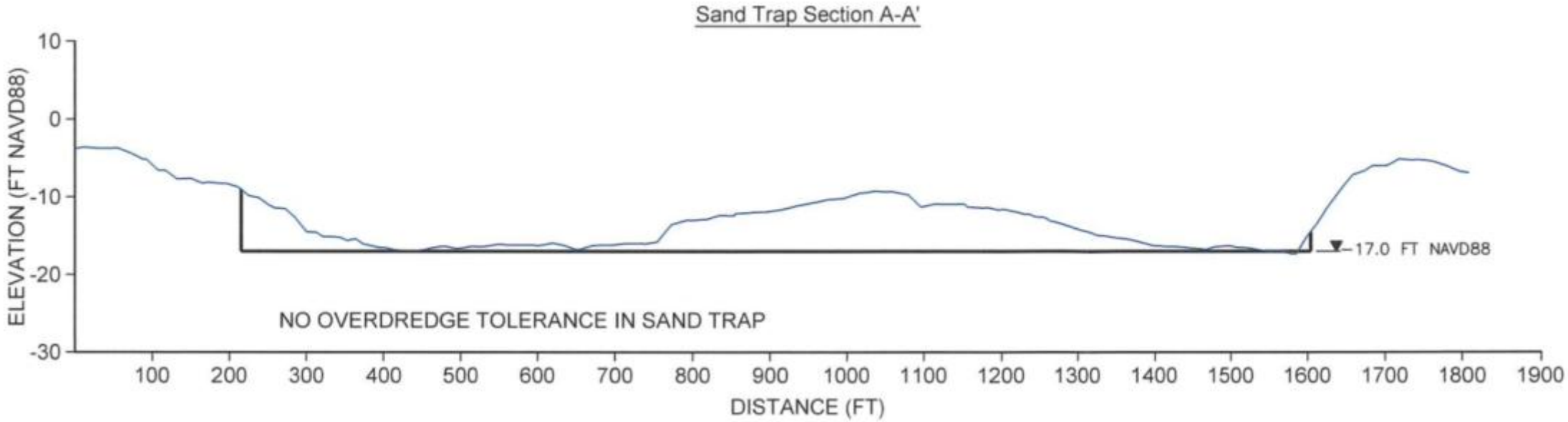
Sand Trap Design & Evolution

Original Design (1972)

- 32 acres
- Main interior -11FT NAVD88

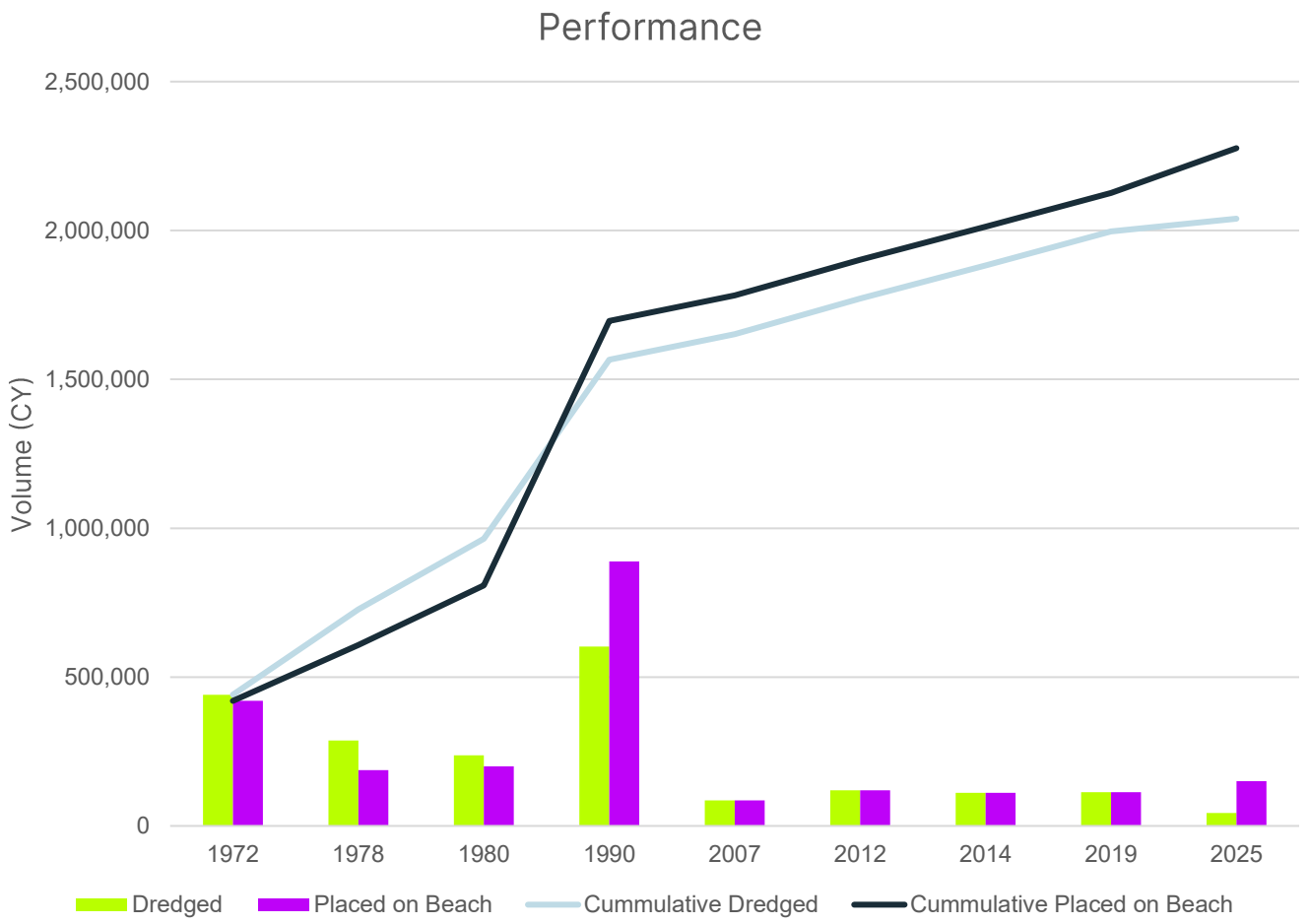
Expansion (2015)

- 42 acres
- Main interior -17FT NAVD88



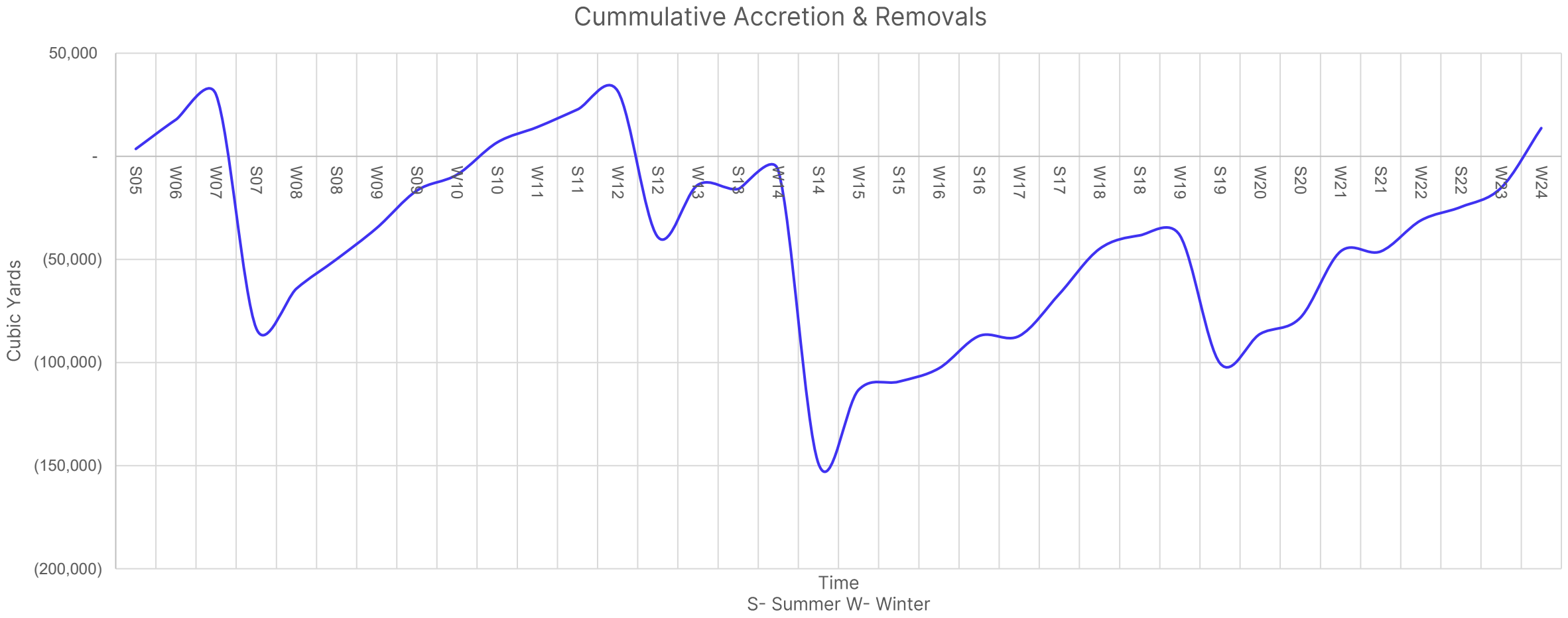
Dredge History

Date	Maintenance Dredge (CY)	Routed to Beach (CY)
1972	440,700	420,000
1978	286,500	187,600
1980's	236,900	200,000
1990's	602,000	888,300*
2007	85,700	85,700
2012	119,900	119,900
2014	111,200	111,200
2019	113,600	113,600
2025 to Date	43,000	150,000*
Total	**2,039,500**	**2,276,300**



Zarillo, G.A. and The Florida Tech Coastal Processes Research Group. 2024. State of Sebastian Inlet Report
*volume supplemented by upland sourced material

Performance & Monitoring



Ground Truthing

Sand Trap Dredged in 2019

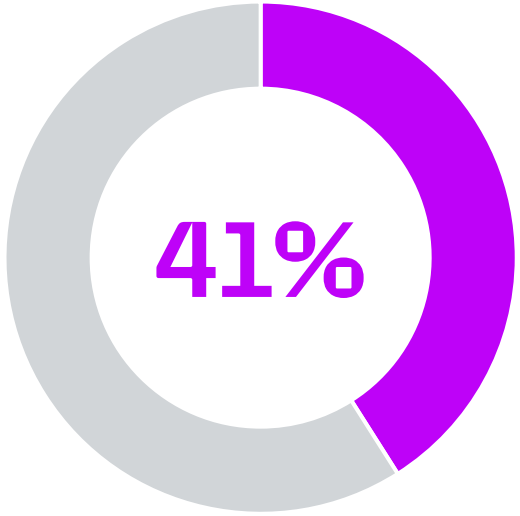
2024 BD survey showed 186,700 CY of material in Sand Trap

5 years 186,700 CY → ~37,400 CY/year

Regulatory Compliance & Challenges

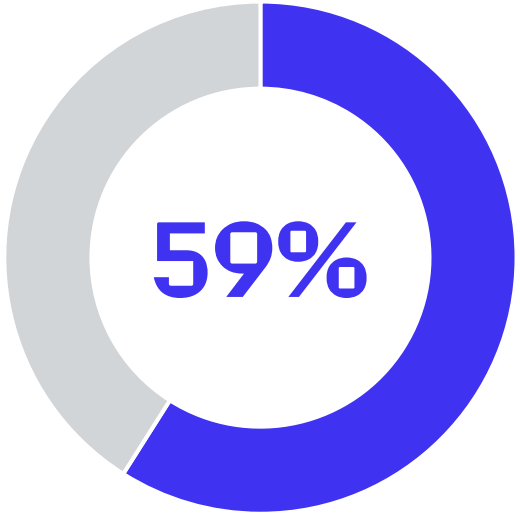
Sand Trap Volume

Assuming bypassing every 5 years, the sand trap will accumulate 155,000 CY

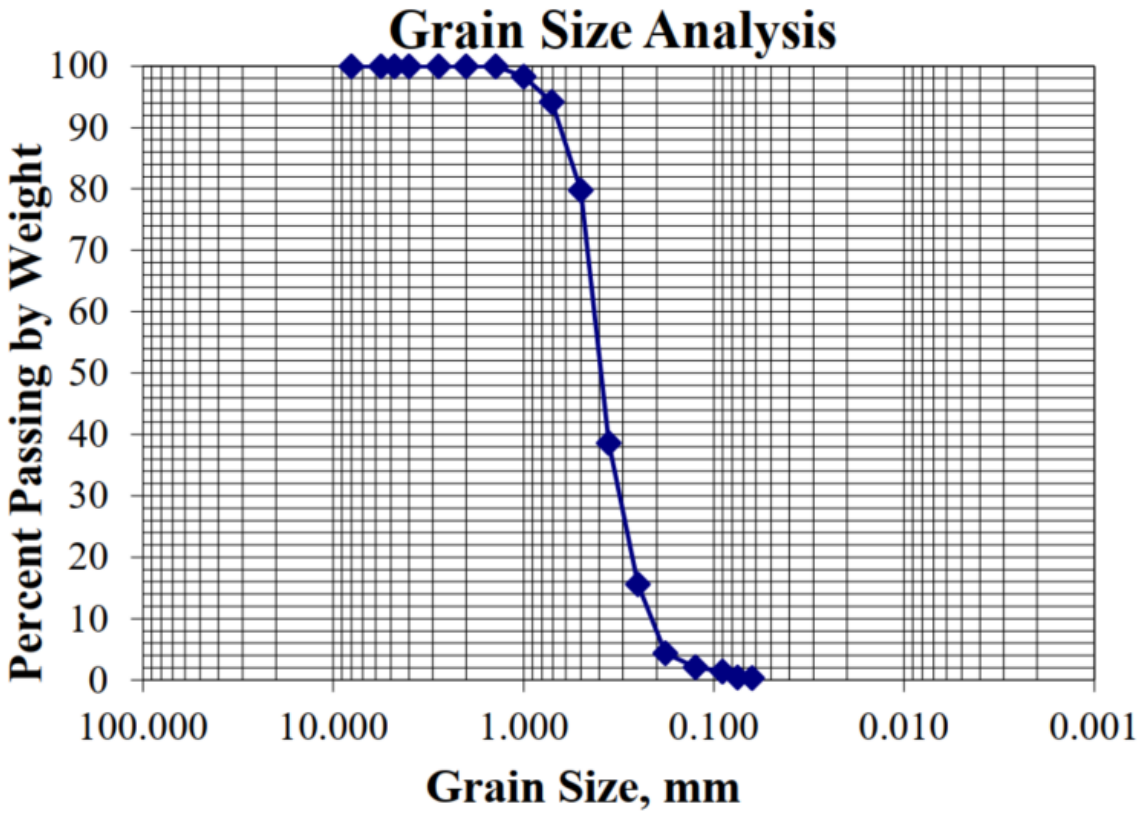


Supplemental Volume

220,000 CY remaining to meet regulatory requirements



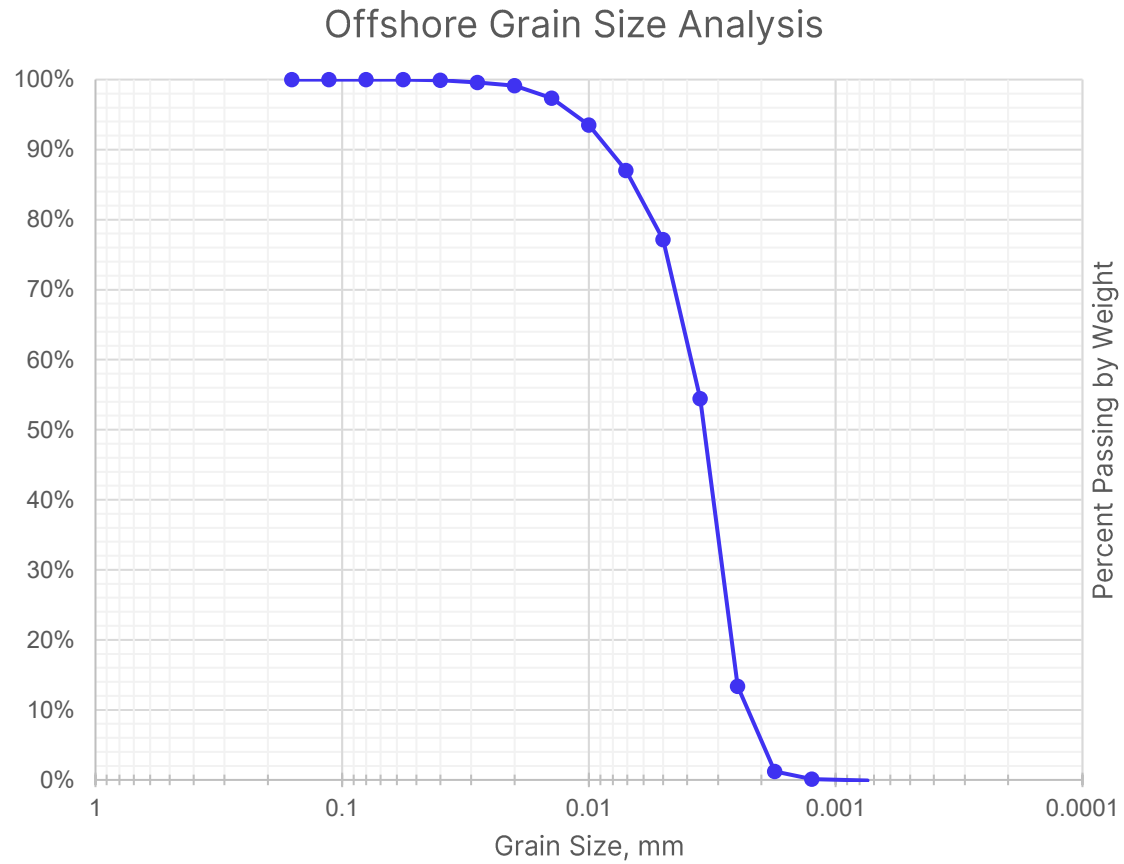
Supplementation Strategies - Upland



Mean: 0.38mm

GFA International Bch 320 Material from Stewart Mines

Supplementation Strategies - Offshore



Mean: 0.30mm – 0.50mm

Florida Institute of Technology

01 Detailed Coring

02 Benthic Habitat Mapping

03 Permitting Analyses

Conclusions

01

Trap is effective for maintaining navigability

02

Trap does not fully satisfy bypassing requirements

03

Mutli-source approach ensures compliance and beach stability

thank you

SEBASTIAN INLET DISTRICT

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