

# Mason Inlet Relocation Project NCBIWA 2023

November 17, 2023





# MASON INLET RELOCATION PROJECT

Shell Island Resort Wrightsville Beach, NC





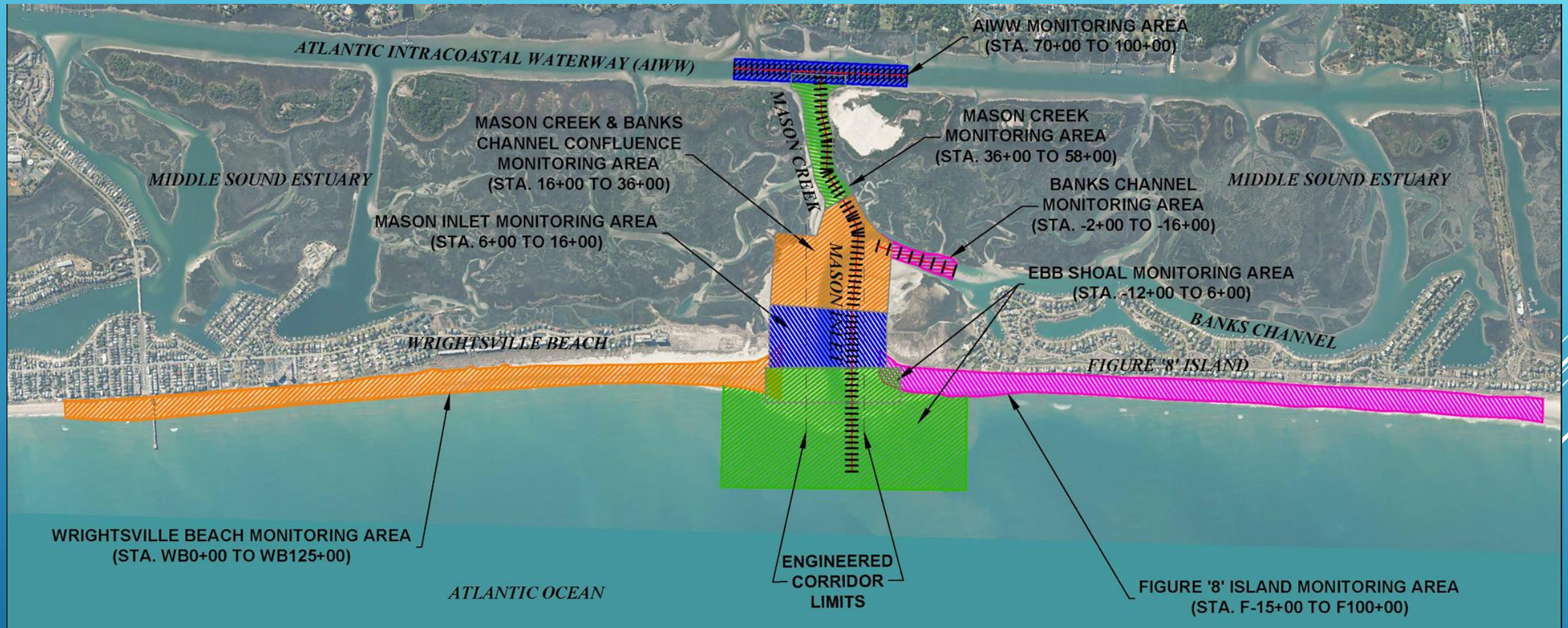


## INITIAL INLET RELOCATION

Between 2001 and 2002, Mason Inlet's alignment was relocated 3,000 feet north, halfway between Shell Island Resort and the southernmost house on Figure 8 Island.

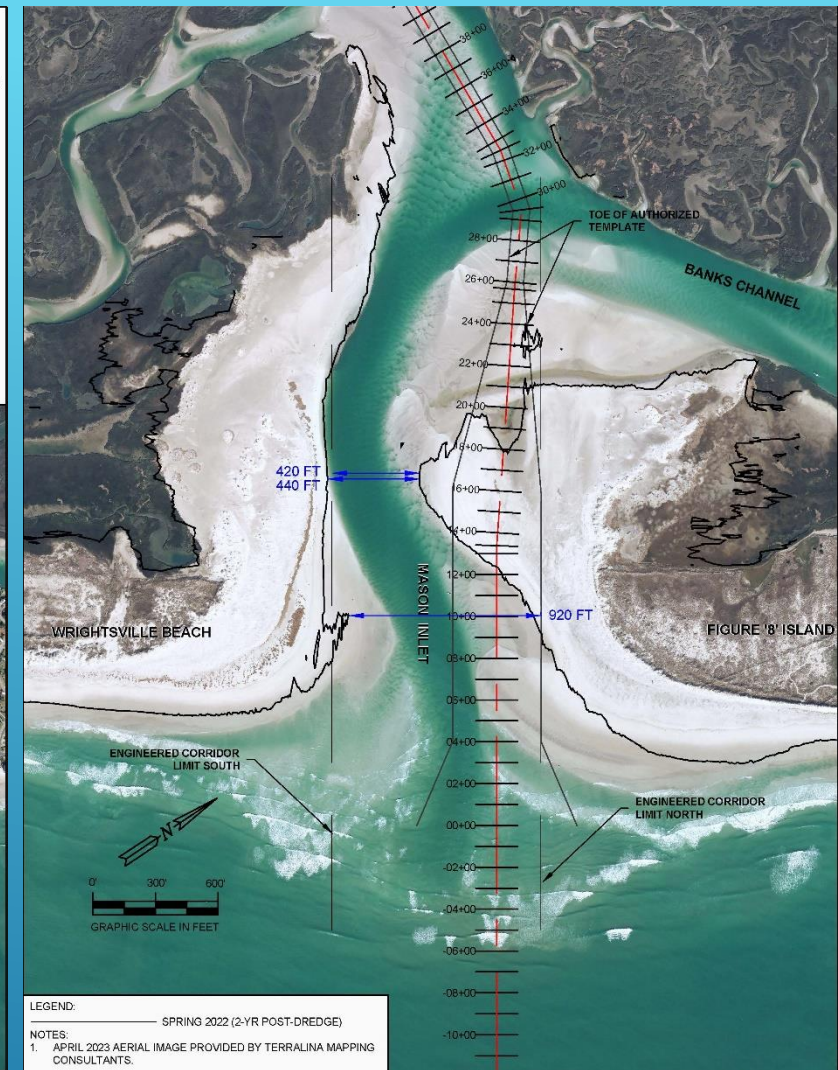
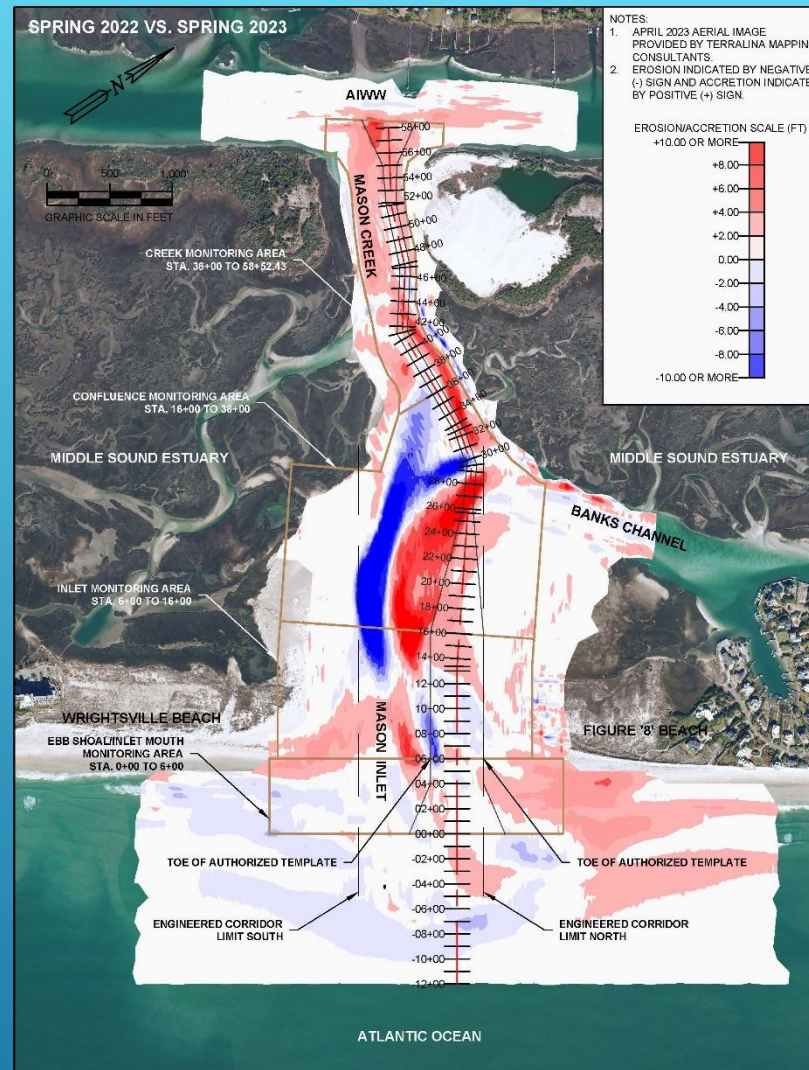
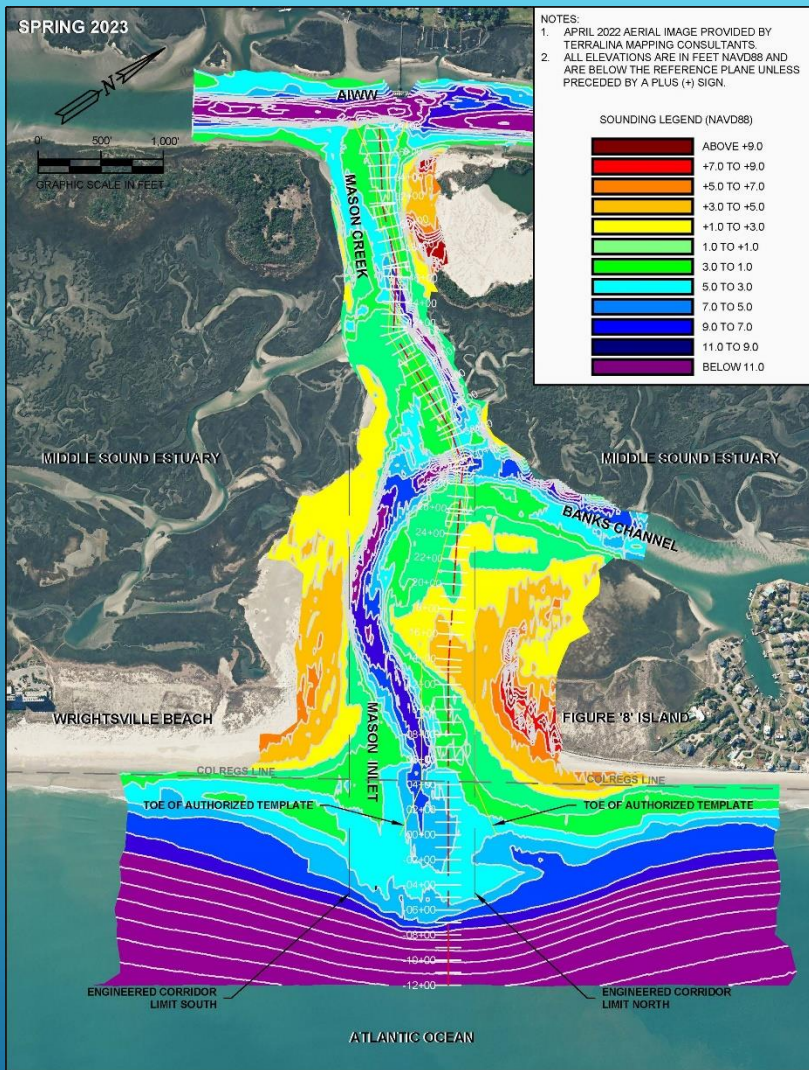


# PHYSICAL MONITORING REQUIREMENTS



Permit stipulations require annual monitoring and reporting to analyze the performance and impacts of the Mason Inlet Relocation Project

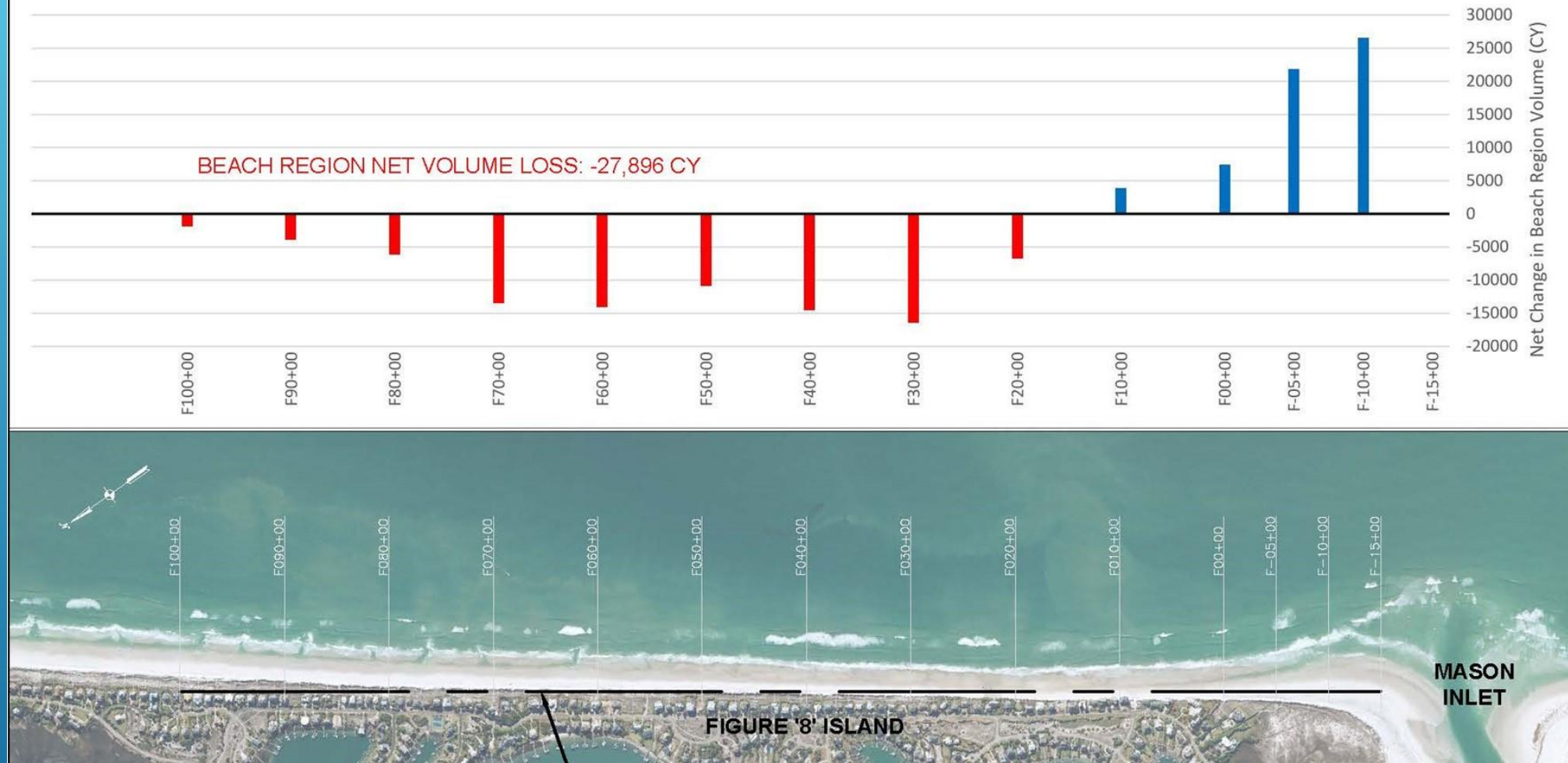




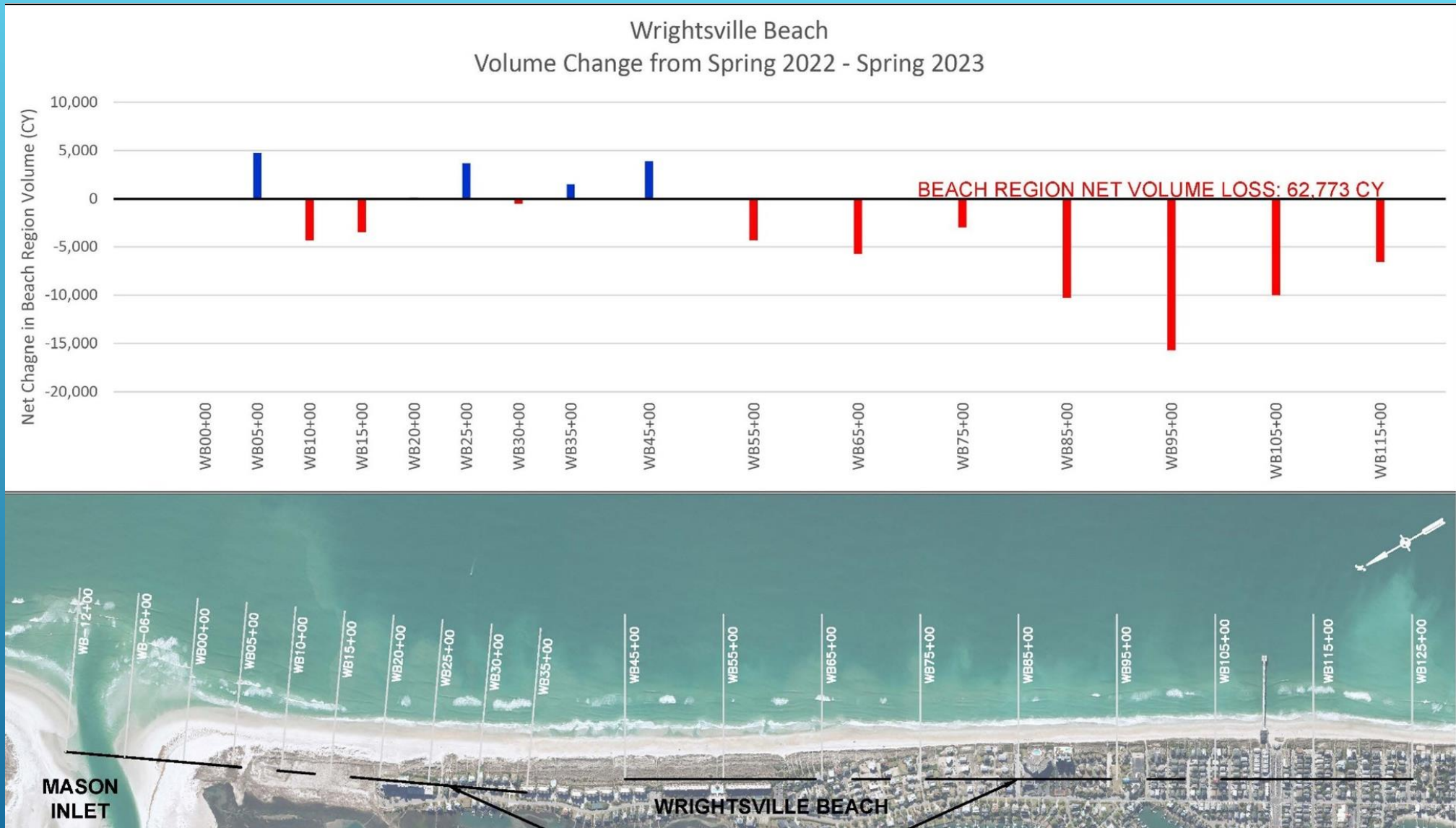
# MASON INLET ANALYSES



Figure '8' Island  
Volume Change from Spring 2022 - Spring 2023 (3-YR Post-Fill)



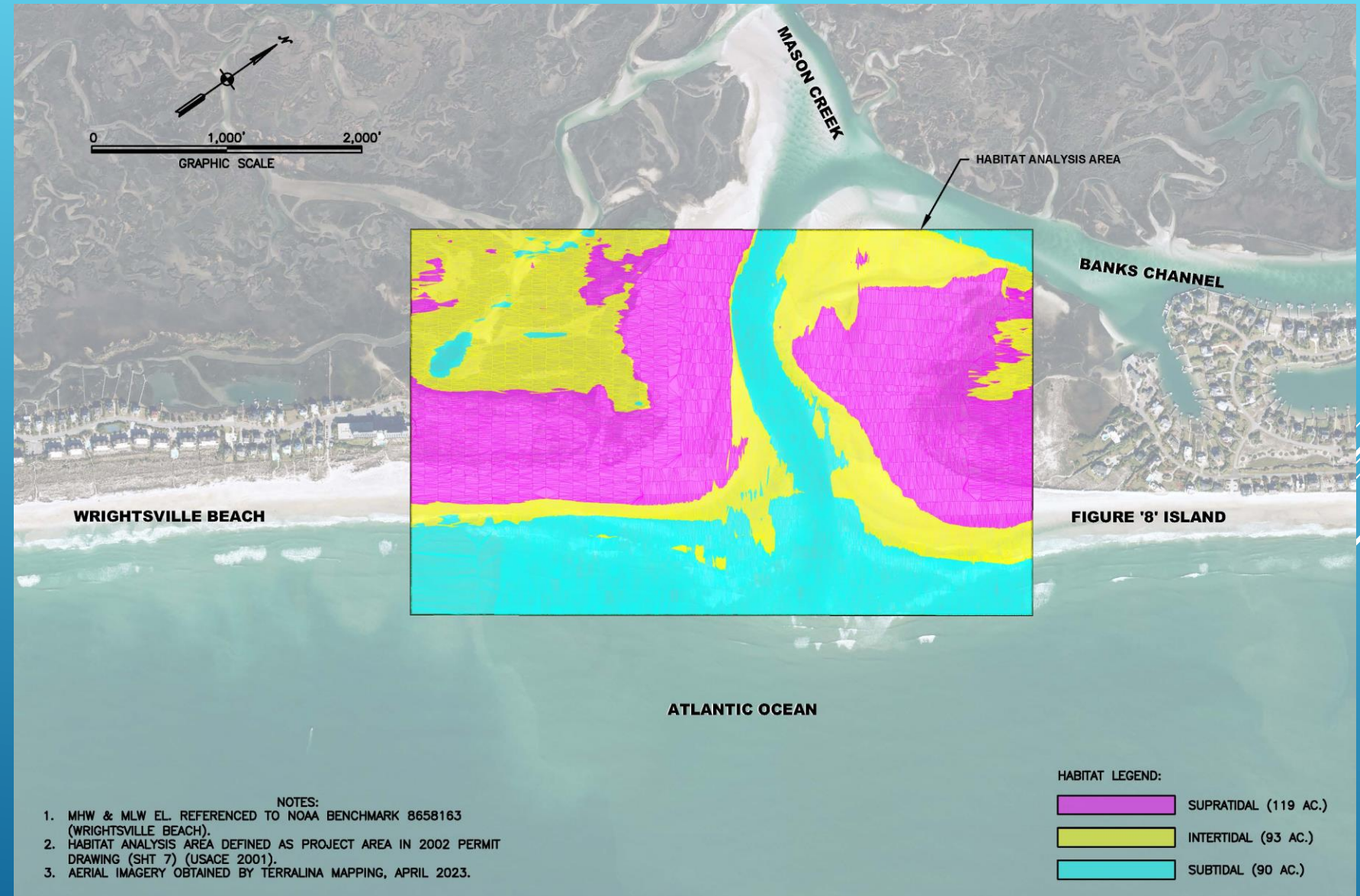
## FIGURE 8 ISLAND ANALYSES



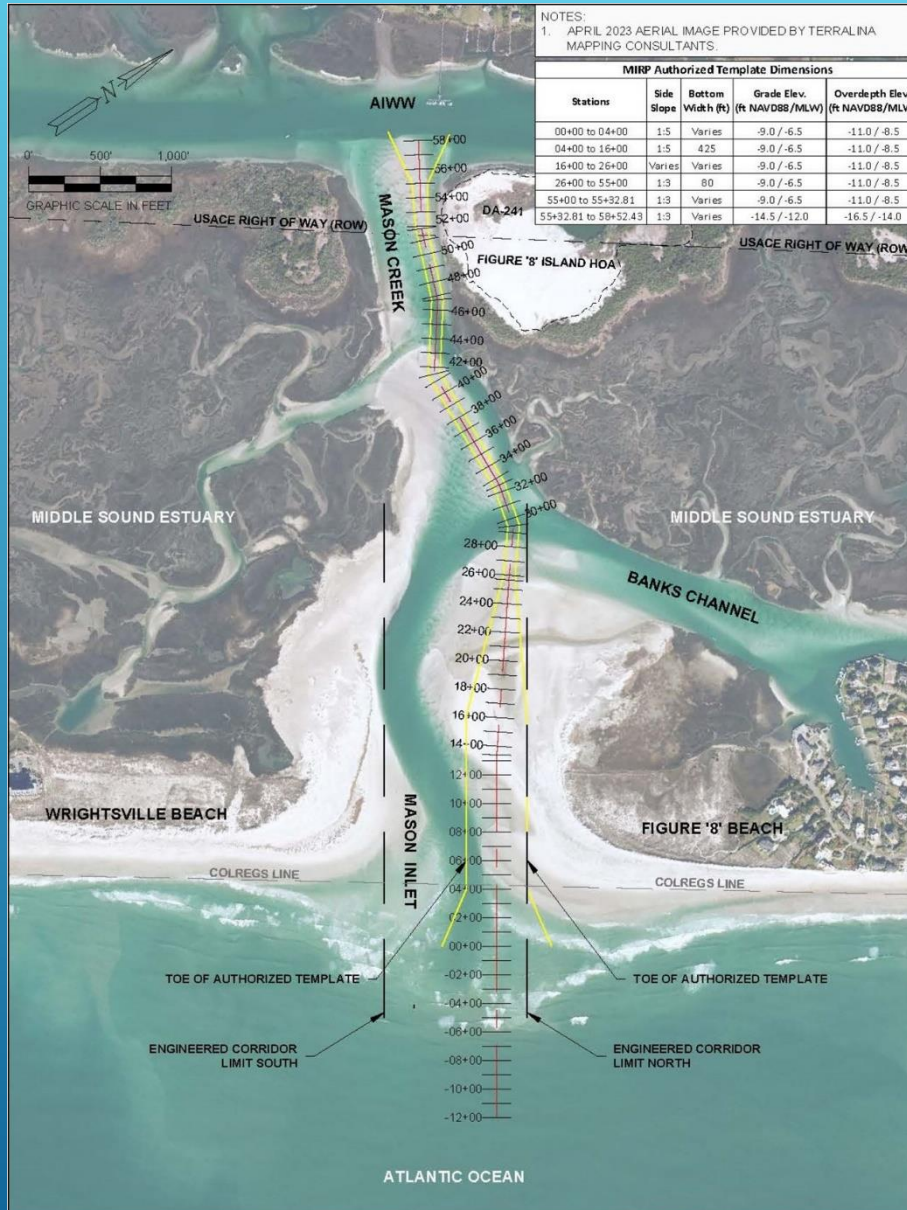
# WRIGHTSVILLE BEACH ANALYSES



# TIDAL HABITAT ANALYSIS







## MAINTENANCE RELOCATION EVENT TRIGGERS

- A channel bank breaches the opposite shoulder's engineered corridor limit
- The quantity of material that has shoaled within the authorized template exceeds 300,000 cubic yards
- Shoaling caused by the Mason Inlet Relocation Project at the Atlantic Intracoastal Waterway and Mason Creek crossing impedes navigation



Event #	Project	Project Type	Dates	MIRP Dredged Quantities (cy)	AIWW Dredged Quantities (cy)	Total Dredged Quantities (cy)
0	Winter 2001/2002	Initial Construction	Jan 2002 – Mar 2002	820,000	---	820,000
1	Winter 2004/2005	Maintenance	Feb 2005 – Apr 2005	183,000	37,050	220,050
2	Spring 2006	Maintenance	Apr 2006	78,639	70,330	148,969
3	Winter 2007/2008	Maintenance	Dec 2007 – Feb 2008	291,382	23,561	314,943
4	Winter 2008/2009	Maintenance	Jan 2009 – Apr 2009	175,960	---	175,960
5	Winter 2010/2011	Maintenance	Jan 2011 and Nov 2011	295,493	49,339	344,832
6	Winter 2012/2013	Maintenance	Jan 2013 – Apr 2013	270,300	46,800	317,100
7	Winter 2015/2016	Maintenance	Jan 2016 – Mar 2016	441,101	59,534	500,635
8	Winter 2019/2020	Maintenance	Jan 2020 – Mar 2020	384,380	25,554	409,933

**Note:**

1. AIWW only maintenance events that place material in DA-241 are not included in this list.

# MAINTENANCE RELOCATION EVENTS OF THE AUTHORIZED TEMPLATE



# 2023-2024 MAINTENANCE PROJECT OVERVIEW





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# MASON INLET WATERBIRD MANAGEMENT AREA

## BIRD MONITORING SUMMARY



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# PROJECT AREA

- Monitoring conducted between March and October.
- Includes a walking survey of the WMA twice a week.
- Extends from the end of N. Lumina Avenue near Shell Island Resort to Mason Inlet.
- Record bird species and numbers.
- Surveyed areas broken into three zones.





## Zone 1:

North of the end of N. Lumina Ave.  
Consists of four distinct habitat areas  
(1) tidal saltmarsh  
(2) large tidal pond;  
(3) intertidal mudflats; and  
(4) large foredune area.





# ZONE 1



Looking south from inlet



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## Zone 2:

- Includes beachfront extending from the northern end of Shell Island Resort north to the inlet.
- Encompasses high quality nesting and foraging habitat for shorebirds and colonial waterbirds.
- An area of higher use by people visiting the beach.





# ZONE 2



Looking southeast from inlet



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Resource Group



## Zone 3:

- Largest of the survey zones, much of which is open water habitat of the inlet.
- Also includes the unvegetated supratidal sand spit habitat for nesting colonial waterbirds.
- Includes the northern extent of the emergent tidal saltmarsh and the intertidal shoreline of the inlet.
- Several shoals emerge at low and mid tide near the inlet and provide a secluded roosting area for a variety of birds.
- Given its proximity to open water, the inlet shoulder exhibited high occurrences of recreational use (i.e. beach walkers, kayakers, anglers, and anchored boats). Due to its distance from the nearest parking area, area does not typically see the same number of pedestrians as Zone 2.





# ZONE 3



**Foraging Habitat**



**Nesting Habitat**







Temporary stakes, rope, and signs are erected along potential bird nesting habitat in March and then removed when the birds are done nesting.







## Surveys include:

- Visual counts of birds by species;
- Approximate number of nests by species;
- Identification of bird species exhibiting courtship and nesting behavior.
- Number of chicks and fledglings (by species).





# LEAST TERNS



## LETE Peak Nest Counts Over Past 5 Years:

2019: 66 nests  
2020: 58 nests  
2021: 68 nests  
2022: 140 nests  
2023: 195 nests



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# LEAST TERNS



## LETE Peak Chick & Fledgling Counts Over Past 5 Years:

2019: 22 chicks / 50 fledglings

2020: 27 chicks / 45 fledglings

2021: 21 chicks / 59 fledglings

2022: 206 chicks / 233 fledglings

2023: 9 chicks / 11 fledglings





## Other Species Nesting Within Project Area



Black Skimmers (2022)



Wilson Plovers







American Oystercatchers



## Other Species Nesting Within Project Area



Common Terns in Zone 3





# FORAGING & RESTING



Skimmers, Terns, and Gulls resting & foraging



Short-Billed Dowitchers foraging



Dunlins resting



Snowy Egret foraging





# RARE SPECIES



Piping Plover





# RARE SPECIES



Red Knots





# Potential Disturbance

Nest attentiveness can be compromised by disturbances occurring in proximity to nesting areas.

- People walking in close proximity to posted areas.
- Dogs off leash – although monitoring by the Town of Wrightsville Beach staff helps to keep these numbers low.
- Use of the back-barrier tidal channels by fishermen, kayakers and paddle boarders.
- Recreational boaters and anglers using the inlet, especially on weekends.
- Predators such as foxes, feral cats, and coyotes.
- Weather.



# CONCLUSIONS

- The Mason Inlet Waterbird Management Area (MI-WMA) provides diverse and high-quality habitat for many regionally important faunal species.
- Although Wrightsville Beach is one of North Carolina's most developed and visited barrier islands, the unique remoteness of Mason Inlet in partnership with County efforts to protect the area has resulted in a successful outcome for all parties.
- The maintenance and management of the MI-WMA has been shown to protect important coastal resources that enhance suitable colonial waterbird and shorebird nesting habitat while also providing significant recreational benefits to both residents and visitors to New Hanover County.





# Questions?



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