



Report

**Bald Head Island, NC
Beach Monitoring Program**

**Monitoring Report No. 23
April 2024 to May 2025**



Village of Bald Head Island
November 2025

Solving our clients' toughest
science and engineering challenges.

Bald Head Island, NC
Beach Monitoring Program

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April 2024 to May 2025

Prepared for
Village of Bald Head Island, NC

Prepared by
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Executive Summary

This report summarizes the Year 24 monitoring data and initial performance of the 2024/25 Bald Head Island Beach Renourishment project. The Year 24 monitoring period (April 2024 to May 2025) represents the twenty-fourth year of island-wide monitoring following completion of the initial 2001 Federal +1.849 Mcy beach disposal at Bald Head Island.

A 2024/25 beach fill project was constructed between December 12, 2024 and March 4, 2025 and was the third Village sponsored nourishment of project shoreline (2009/10 & 2019). The fill limits of the 2024/25 project span roughly 2.6 miles of the Atlantic Ocean shoreline of Bald Head Island. The project resulted in the placement of a pay volume of 1,000,000 cubic yards (cy) of sand at a total cost of \$16,125,000.00. The project was financed and managed by the Village of Bald Head Island. In addition to the renourishment project, the Village contracted with McPherson Marine Services, LLC. to concurrently replace the 13-structure sand-tube groin field. The sand-tube construction began on January 5, 2025 and was completed on February 17, 2025. The engineer and permit agent for both projects was Foth | Olsen of Jacksonville, FL.

In compliance with project permits and the physical monitoring plan, survey data and aerial photography were collected during Year 24. These data include island-wide beach profile surveys in April 2024, October 2024, & May 2025; bathymetric surveys in April 2024 & October 2024 of the original Jaybird Shoals (JBS) borrow area limits, bathymetric surveys in November 2024 & March 2025 of the expanded JBS borrow area utilized in the 2024/25 project, island-wide orthorectified aerial photography in April 2024, October 2024 & May 2025, and oblique aerial drone photography flown at various dates during the monitoring year.

West Beach, “the Point”, South Beach Changes. During the 6-month monitoring period prior to the 2024/25 beach fill placement (April 2024 to October 2024), the combined West Beach, “the Point”, and South Beach shorelines lost -246,400 cy above -16 ft-NGVD (i.e. presumed depth of survey closure). On weighted average the berm and Mean High Water Line (MHWL) receded by -1 ft and -9 ft, respectively.

The 2024/25 South Beach fill placement area lost -160,100 cy above closure during this period. Additionally, the contractor’s pre-construction survey (November 2024) indicated an additional -93,600 cy of sand loss prior to construction, necessitating a slight adjustment to the final construction template.

Executive Summary (continued)

During the 7-month period that includes the 2024/25 beach fill placement (October 2024 to May 2025), the combined shoreline gained +658,600 cy above closure. On weighted average the berm and MHWL advanced by about +54 ft and 61 ft, respectively.

The 2024/25 South Beach fill placement area gained +731,400 cy above closure during this period. Measured above -5 ft-NGVD, (roughly the offshore limit of fill placement), the beach fill area gained +761,200 cy. On weighted average, the berm and MHWL advanced by 106 ft and 104 ft, respectively. This shoreline advance created roughly 32.3 acres of additional “dry beach” area as measured between the October 2024 and May 2025 MHWLs.

Over the entire Year 24 (October 2024 to May 2025), the combined shoreline gained +412,200 cy above closure. This is inclusive of the 1.0 Mcy (pay) placed along portions of South Beach. On weighted average, the berm and MHWL advanced by +53 ft and +52 ft, respectively.

The 2024/25 South Beach fill placement area gained +571,300 cy above closure during Year 24 and +637,300 cy above -5 ft-NGVD (roughly the offshore limit of fill placement). On weighted average, the berm and MHWL advanced by 106 ft and 104 ft, respectively. This shoreline advance created roughly 32.3 acres of additional “dry beach” area as measured between the October 2024 and May 2025 MHWLs.

2024/25 Borrow Area Changes. Based upon the Contractor’s pre- and post-construction surveys of the JBS expansion area used for the 2024/25 beach placement, roughly 1,122,800 cy of material was excavated from within the borrow area limits. This is within about 6 percent of the Contractor’s measured BD/AD total beach placement volume of 1,052,400 cy. Some of these differences may be attributable to natural changes within the expansion borrow area. The next survey of the borrow area is scheduled for the Year 25 monitoring period in event in the spring of 2026.