

TOWN OF DUCK

2018 SHORELINE & VOLUME MONITORING REPORT

I. INTRODUCTION

The Town of Duck is focused on a long-term shoreline management program that will serve to sustain the beaches that support a significant portion of their local economy, maintain the tax base of the Town, retain existing recreational resources, and protect existing natural resources. In order to accomplish these stated goals, the Town is taking steps to maintain and monitor its oceanfront beach and dune to a configuration that provides a reasonable level of storm damage reduction to public and private development and mitigates long-term erosion impacts.

Between May and June 2017, the Town of Duck constructed a large beach nourishment project along approximately 1.6 miles of its ocean shoreline north of the US Army Corps of Engineers (USACE) Field Research Facility (FRF). The beach fill project placed approximately 1.26 million cubic yards of sand between profile D-10 near Skimmer Way and profile D-19, which is the northern boundary of the USACE FRF property.

This monitoring report describes the analysis of beach profile data for shoreline change between October 1996 and June 2018 and includes the LiDAR survey obtained in October 1996 and profile surveys obtained in September 2013, May 2015, December 2017, and June 2018. Volumetric changes were evaluated using the September 2013, May 2015, December 2017, and June 2018 surveys.

II. PROJECT LOCATION

The Town of Duck is located on the Outer Banks of North Carolina roughly 27 miles south-southeast of the North Carolina and Virginia border. The Town encompasses 5.5 square miles extending along 5.9 miles of Atlantic Ocean shoreline from the Dare County and Currituck County line south-southeast to the Town of Southern Shores. The USACE Field Research Facility (FRF) is located within the Town limits near profile station D-21, and is approximately 2.3 miles north of the southern limit and 3.6 miles south of the northern limit. A Location Map is provided in Figure 1. This location map also shows the limits of the nourishment project built along a 1.6-mile section of the Town's oceanfront shoreline between May 23 and June 29, 2017, and the two Outer Continental Shelf (OCS) borrow areas located in Federal waters offshore of Dare County. While only 1.6 miles of the Town's shoreline was directly impacted by the beach nourishment project, the beach monitoring program includes the entire 5.9 miles of the Town's shoreline.

The analysis described in this report focuses on assessing shoreline and volume changes within the limits of the beach nourishment project as well as the areas north and south of the project throughout the entirety of the Town. In this regard, the area north of the project includes profile stations D-01 to D-09 within the Duck town limits and 2,000 feet of shoreline on the south end of Pine Island (profile stations PI-17 and PI-18). The area south of the project includes profile stations D-20 to D-34. The map shown in Figure 2, depicts the project area, monitoring areas north and south of the project area, and the stations at which beach profile surveys were conducted.