4.2 Occohannock on the Bay

(Excerpt from "Living Shoreline Sea Level Resiliency: Performance and Adaptive Management of Existing Sites" report)

4.3

Occohannock on the Bay, also known as Camp Occohannock, is located near the mouth of Occohannock Creek in Accomac County, Va (Figure 4-2-1). The project shoreline faces south-southwest and is relatively sheltered except for long fetch out the mouth of Occohannock Creek into Chesapeake Bay. The historic erosion rate was about 0.3 ft/yr. The final project shoreline had 3 subreaches, from south to north 1) about 200 feet of low eroding upland bank along the lateral access road, 2) about 100 feet of eroding marsh fringe with an existing small tidal creek and 3) a low eroding bank that increases in elevation from +3 feet to +10 ft MLW in front of the camp office. The "Living Shoreline" project at Camp Occohannock consists of three distinct treatments for each segment (Figure 4- 2-2).

Figure 4-2-1. Location of Occohannock on the Bay.

1. Along Reach 1 the original revetment was replaced with a 185-foot-high sill Section BB and ZZ (Figure 4-2-3) to protect the actively eroding upland and access path. Sand fill intersected the sill at +1.0 ft MLW and graded to a +4 ft at the low upland bank.
2. Reach 2 begins with Sill #1 then a gap (Bay B) for the tidal creek, Section CC. Sand fill went to edge of low eroding marsh scarp. Beyond Bay A, Sill #2 continues along the remaining marsh shore transitioning to the low upland banks, Section DD.
3. Reach 3 begins at Bay C which is 40 feet wide between Sill 2 and Sill 3 and is the present location of the kayak and canoe access beach. The added sand fill provides a protective beach for the adjacent low upland bank. Sill 3 continues for 220 feet and protects the adjacent actively eroding upland bank. The upland bank increases from +5 ft MLW to +12 ft MLW along the length of Sill 3 and bank grading is proposed as shown (Section EE). Sand fill was taken to +5 MLW against the graded bank. It should be noted that the Sill 3 sand nourishment covered approximately 5,980 sq.ft of existing low marsh was not wide or robust enough for adequate shore protection. The project created 6,900 sq.ft of intertidal marsh and 9,120 sq.ft of high marsh.

Figure 4-2-2. Camp Occohannock living shoreline plan.

The project was built in 2013. Reach 1 is shown in Figure 4-2-4A pre-construction in 2013, and after 5 years Figure 4-2-4B. Full marsh growth is evident. Small pine trees and salt bush are pioneering the backshore along the low bank (Figure 4-2-4C). Reach 2 shown right after planting and after 5 years (Figure 4-2-5A and 4-2-5B). Blue arrows indicate small tidal creek channel still functioning. Abundant oyster growth on rocks and fish utilization are seen along entire project (Figure 4-2-5C). Reach 3 is seen before construction, after construction and after 5 years in Figures 4-2-6A, B, and C, respectively. The low marsh section has developed "bare" areas where the *S. alterniflora* is absent even with some maintenance planting. A reduction in grade is expected. However, non-vegetated wetlands are still very valuable habitat and the high marsh and shore protection terrace is still very much intact. As this site matures pioneering small pines are becoming abundant and should be thinned to reduce the potential for shading the erosion resistant high marsh "turf".

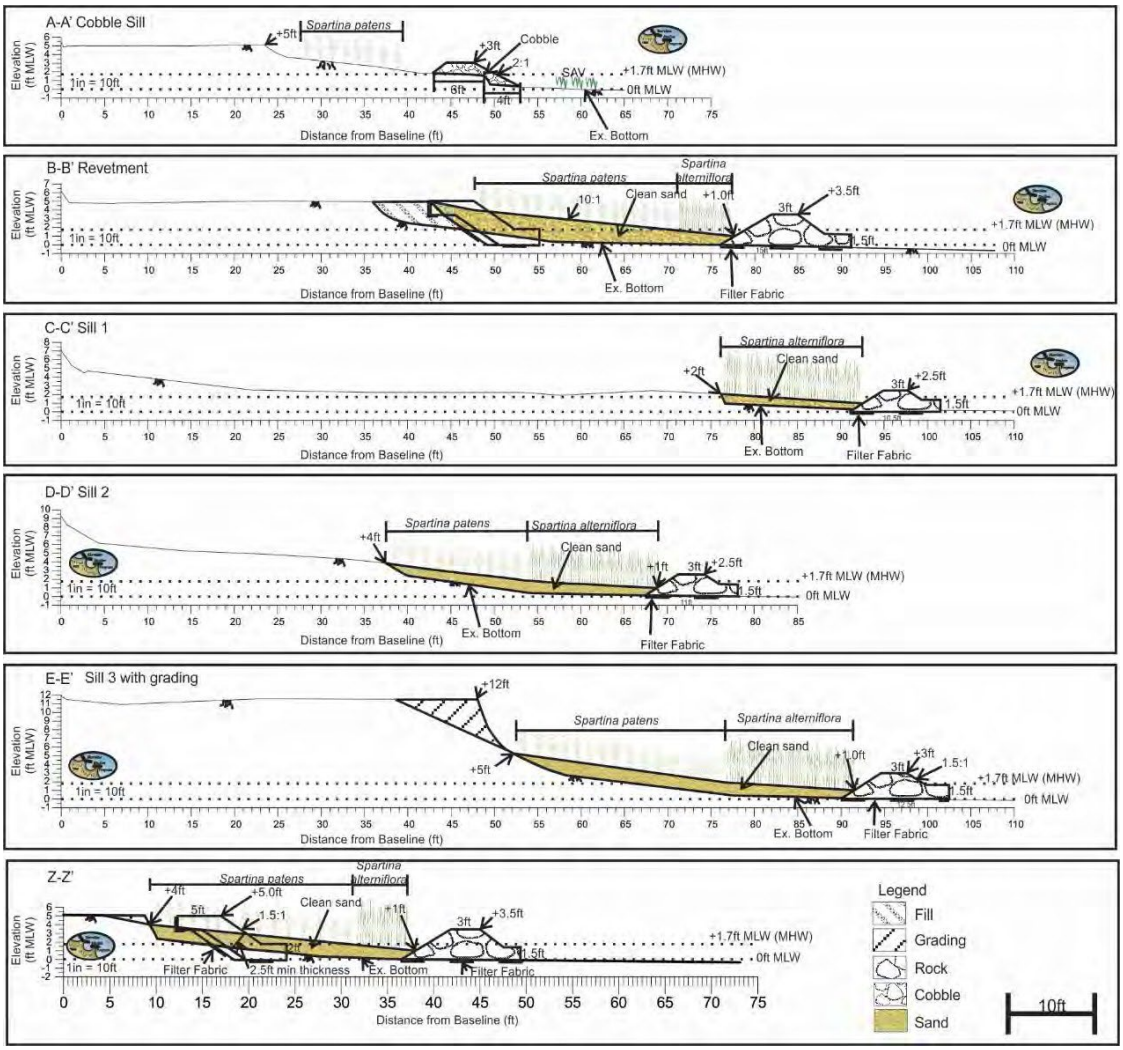

Figure 4-2-3. Typical cross-sections for Camp Occohannock living shoreline.

Survey data shows Reach 1 sill (ZZ) with elevated substrate from the sand fill in sections P587 (Figure 4-2-7 and Figure 4-2-8). The upland bank edge was graded slightly to the back of the sand fill. Reach 2, Sill 1 shows the mouth of the tidal creek has shifted and deepened slightly (P503). The tidal creek flat behind sill # 3, P440 has remained relatively stable transitioning to the sand fill going north, P 394. Reach 3 sections P151 and P79 show the graded bank and wide stable sand fill.

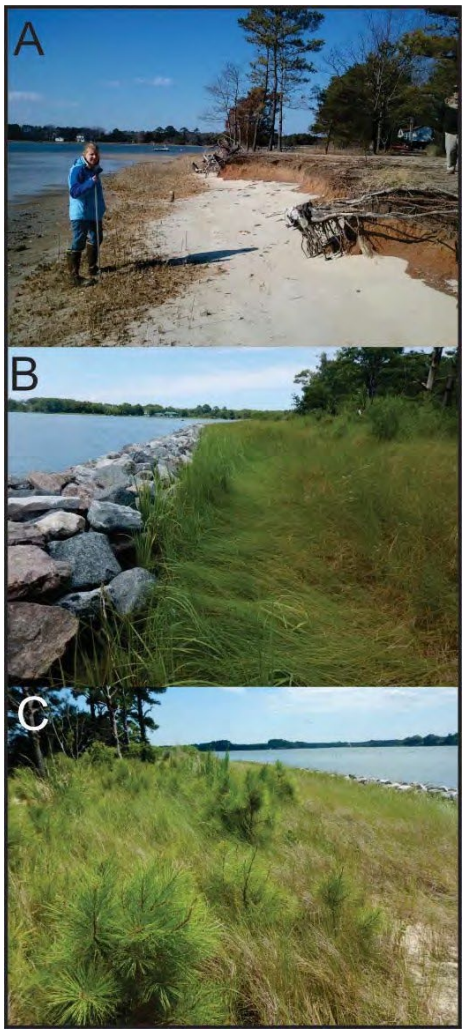

Figure 4-2-4. Photos of reach 1 at Occohannock on the Bay A) before installation (April 2013), B) after 5 years (July 2018), C) after 5 years, the backshore is being colonized by trees.

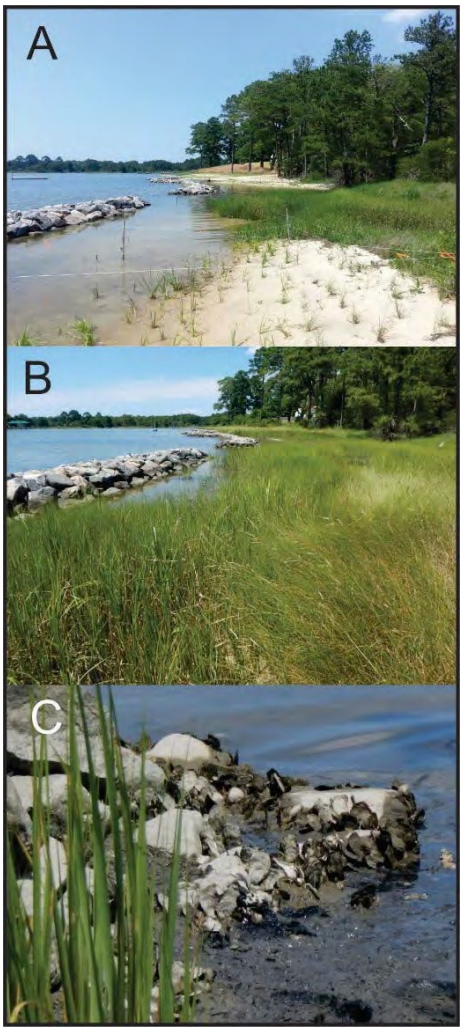

Figure 4-2-5. Photos of reach 2 at Occohannock on the Bay A) after planting (May 2013), B) after 5 years (July 2018), C) after 5 years there is abundant oyster growth around the end and outsides of the rock sills.

Figure 4-2-6. Photos of reach 3 at Occohannock on the Bay A), before construction (March 2013), B) after planting (May 2013), C) after 5 years.

Figure 4-2-7. Location of cross-sectional profiles at Occohannock and the 2018 surveyed position of mean high water.

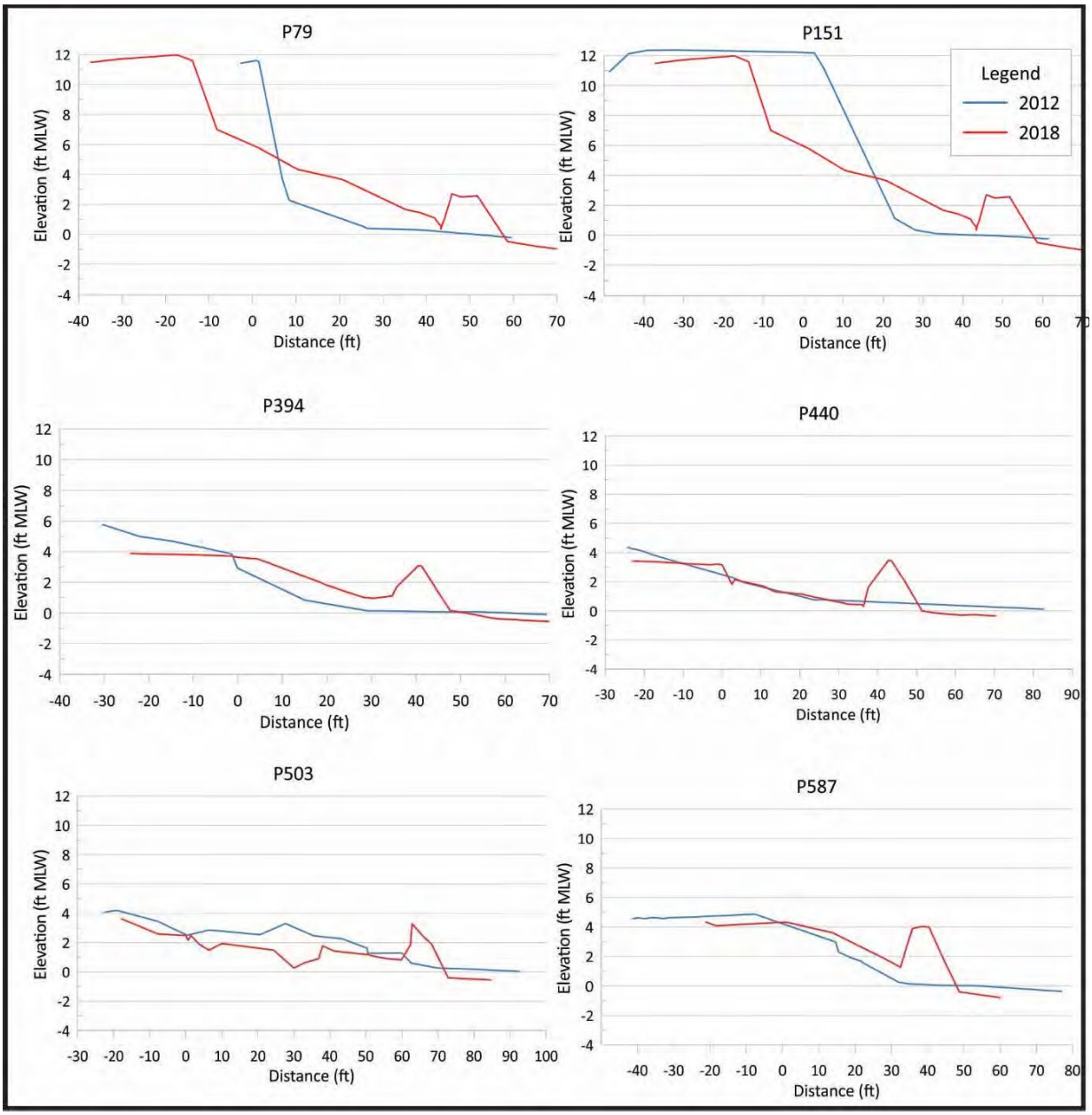

Figure 4-2-8. Cross-sectional profiles at Occohannock taken before the living shoreline project was installed and in 2018.