

District Project Highlights

Brunswick Marsh Sill/Living Shoreline Project

Boone's Neck



Photo by Elliot Swain

Brunswick District Boone's Neck Marsh Sill Demonstrated Need

- Impaired waters
- Shellfish/High Quality Waters
- Significant erosion
- Loss of shore and marsh grasses
- Significant increased turbidity



Photo showing the increased turbidity due to excessive erosion. Note the photo is taken at a relatively calm time with limited wave action



Boone's Neck Marsh Sill Breakwater material

- A variety of materials are now available for breakwater systems
- This photo shows a proprietary system called "Quick Reef"
- The highly textured surface allows oyster larvae/spat to attach and grow
- The breakwater grows with the spat/oysters
- The breakwater used is based on the energy system specific to the site conditions



This photo shows the foundation and breakwater slabs used on the marsh sill/living shoreline project

Photo by Elliot Swain

Boone's Neck Marsh Sill Breakwater installation

- The Quick Reef breakwater slabs are laid flat as a foundation with one slab on each side laid at ~15 to 30 degree angle
- Mats are used under the skid steer to protect the existing marsh grasses
- Each slab weighs ~75 pounds
- They are installed at 1-foot below mean high tide with breaks every 100-feet for fish passage



Skid steer removing a mat so the workers can lay the foundation slabs



Boone's Neck Marsh Sill Breakwater installation - continued

- The completed breakwater/marsh sill shows the breaks every 100-feet for fish passage
- These breaks are required by the CAMA permit
- The sills can be no more than 30-feet from the shore for a general CAMA permit
- Markers are also placed for a visual hazard marker for boats

Photo by Elliot Swain



Photo at low tide showing placement of the breakwaters/sills on the landscape



Boone's Neck Marsh Sill Completed Project

- Breakwaters are inundated 1-foot at high tide by design on low to moderate energy systems
- This allows for additional fish/marine passage
- The breakwater still serves to dissipate wave energy
- Hazard markers still visible

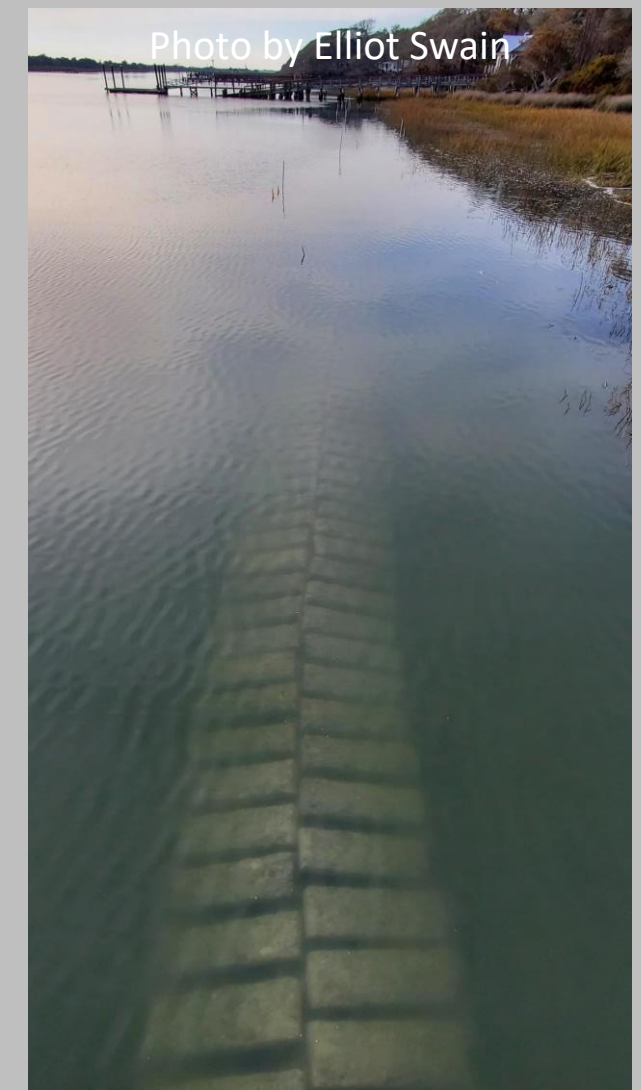


Photo at high tide showing breakwaters completely inundated



Boone's Neck Marsh Sill Completed Project

- Photo taken approximately 8-months after completion
- Excellent oyster growth on the breakwaters
- Excellent accretion/accumulation of “marsh muck” and soil behind the breakwater
- Erosion minimized and contained in the appropriate marsh dynamic
- Marsh habitat restored and increased

Photo by Chris Smith



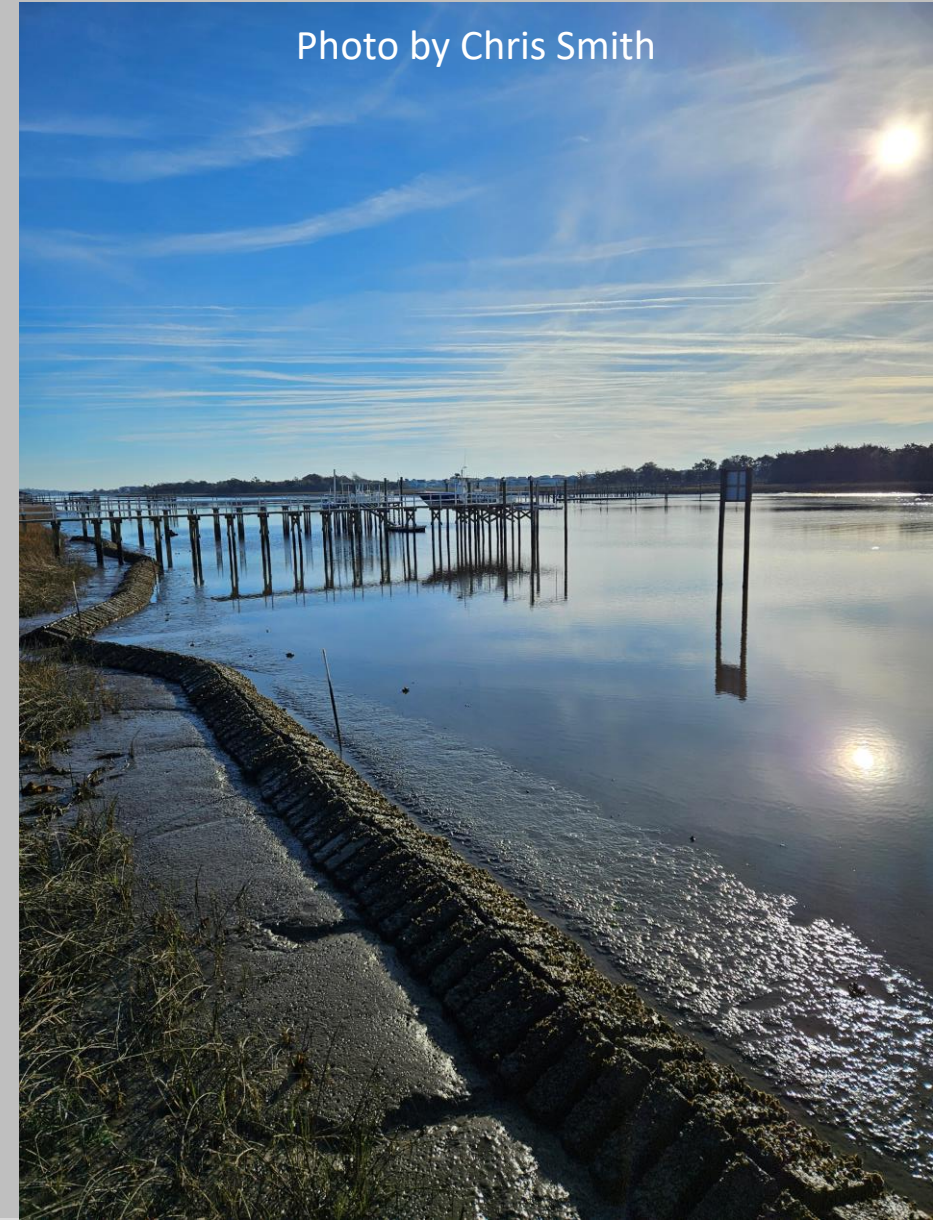
Low tide photo showing the accretion building behind the breakwaters. Mature and maturing oysters, grasses readying as the muck builds



Boone's Neck Marsh Sill Completed Project

- Photo taken approximately 1-year after completion
- Excellent oyster growth on the breakwaters
- Excellent accretion/accumulation of “marsh muck” and soil on both sides of the breakwater
- Vegetation reestablishing
- Marsh habitat restored and increased

Photo by Chris Smith



Boone's Neck Marsh Sill Long-term Benefits

- This project restored and created significant marsh habitat in high-quality shellfish waters
- Shore erosion was minimized and utilized in development of the marsh
- Natural marsh processes were aided with carefully planned and implemented human-influenced solutions to the identified problem
- Dedicated, knowledgeable project team
- Continued successes

Photo by Chris Smith



Boone's Neck Marsh Sill Living Shoreline Project Partners

- Chris Smith - Landowner
- Elliot Swain – Brunswick Soil and Water Conservation District
- Mary-Margaret McKinney, Morgan Rudd, Worth Creech, Grainger Coughtrey, Josh Merrit – Native Shorelines, Contractor
- Lexia Weaver, Sarah Bodin, Catie McKinney – NC Coastal Federation
- Gail Dragon – NC Department of Agriculture and Consumer Services
- Tom Hill – NC Division of Soil and Water Conservation

Photo by Chris Smith

