

Living Shoreline Project Monitoring in Mississippi and Alabama

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Alonzo Landing Wave Attenuation Devices Project, Dauphin Island, AL

Erosion Rate: High

Project Size: 600 feet

Project Design: 182 precast concrete Coastal Haven breakwaters were installed in two interlocking rows parallel to the marsh in water approximately 1.3 m deep.

Installation Date: 2005

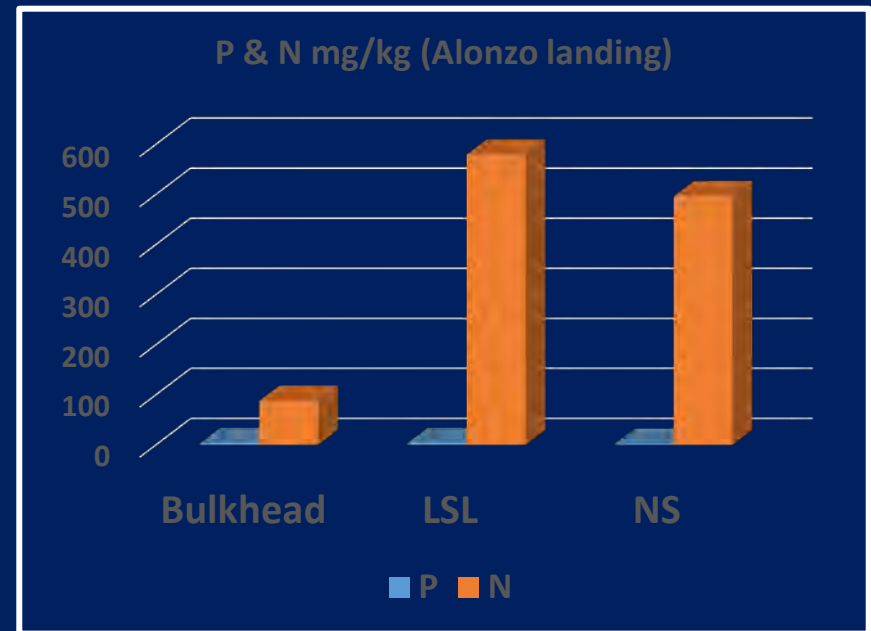
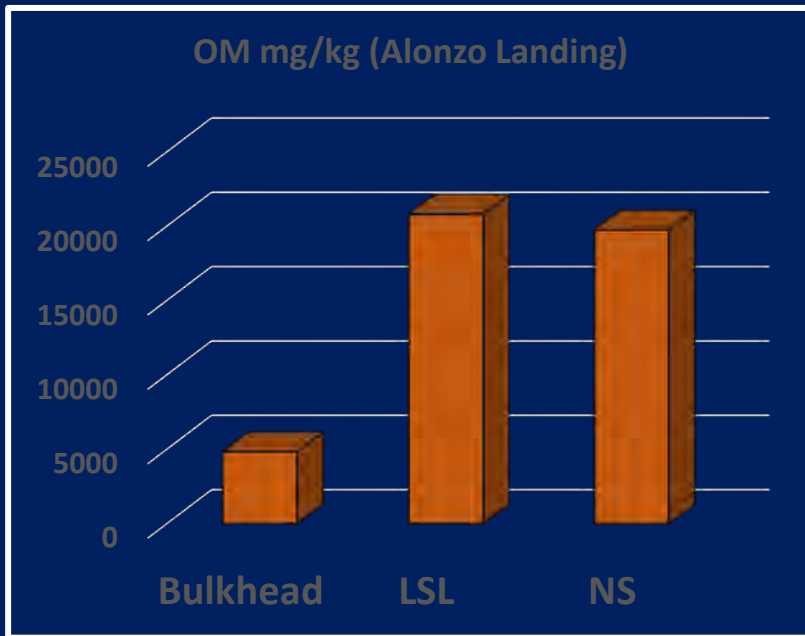
Monitoring: erosion, accretion, oyster recruitment, vegetation sampling, and soil and water sampling

Project success: Good. Reduced erosion rate, oyster recruitment (205 oysters/m²), and healthy marsh vegetation.



Alonzo Landing, Dauphin Island (continued)

Soil Samples were collected to compare if the wave attenuation devices have increased organic matter and nutrients to promote marsh growth and increase ecosystem services in 2012.



Alabama Port, Coden, AL

Erosion Rate: High

Project Size: 3,200 feet

Project Design: Three types of breakwaters were used, bagged oyster shell, Reef Balls, and ReefBlk cages.

Installation Date: 2010

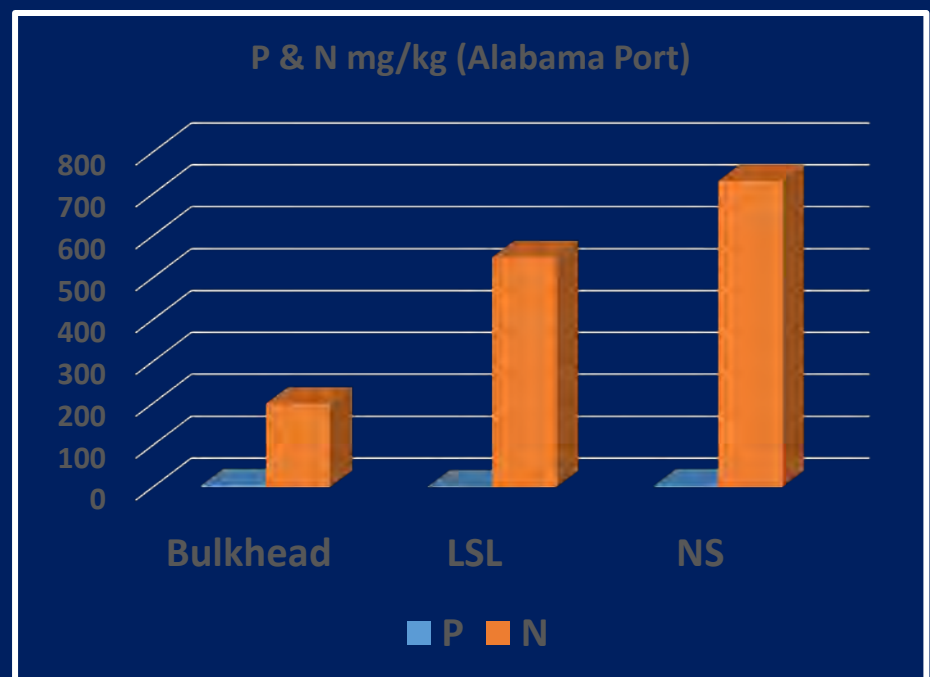
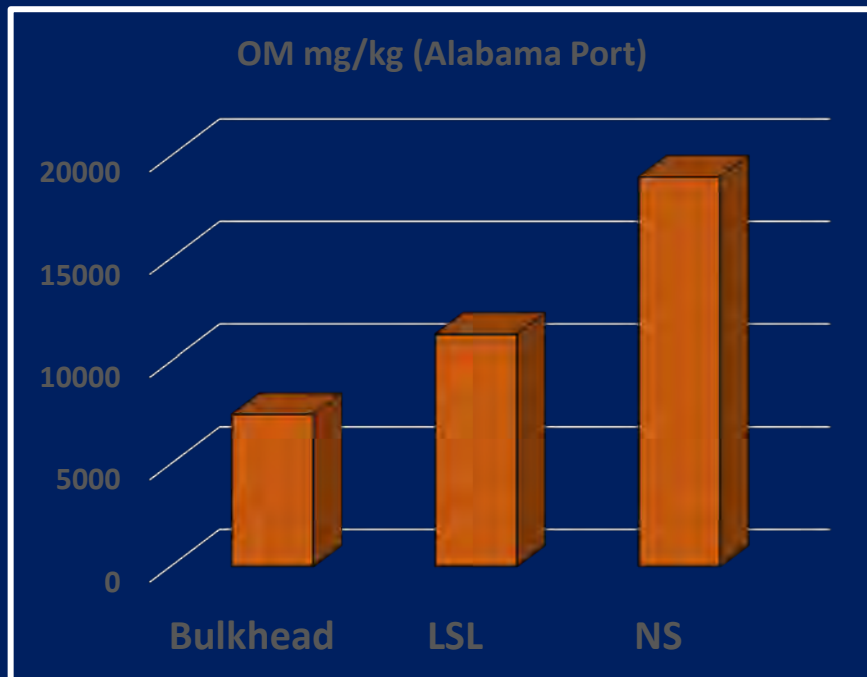
Monitoring: erosion, accretion, bathymetry, oyster recruitment, fisheries, vegetation health, and soil and water sampling.

Project success: Marshes are still eroding but structures are providing good fisheries benefits.



Alabama Port, Coden, AL (continued)

Soil Samples were collected to compare if the living shoreline treatments have increased organic matter and nutrients to promote marsh growth and increase ecosystem services in 2012.



Coffee Island, AL

Erosion Rate: High

Project Size: 3,300 feet

Project Design: Three types of breakwaters were used, bagged oyster shell, Reef Balls, and ReefBlk(SM) cages.

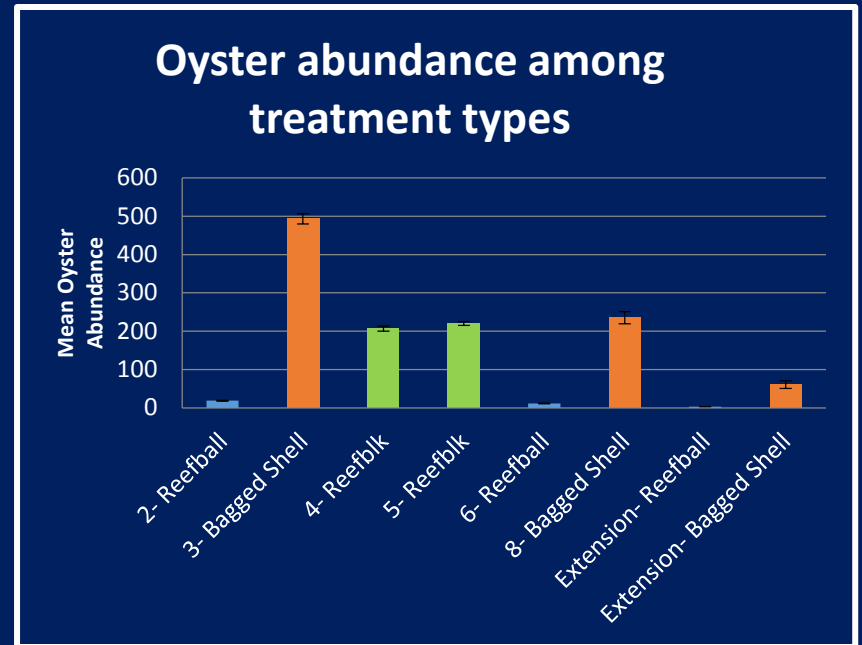
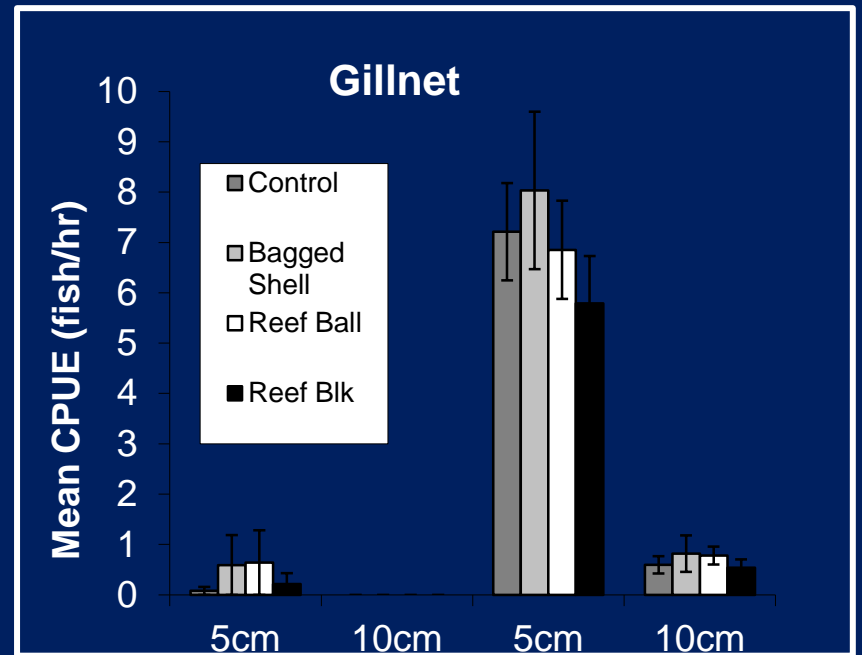
Installation Date: 2010

Monitoring: erosion, accretion, bathymetry, oyster recruitment, fisheries, vegetation sampling, and soil and water sampling.

Project success: Marshes are still eroding but structures are providing good fisheries benefits.



Coffee Island, AL (continued)



Little Bay Coastal Marsh Creation and Protection Project, Bayou La Batre, AL

Erosion Rate: High

Project Size: 5,200 feet

Project Design: Installed 5,200 feet of segmented breakwater using wave attenuation devices or WADs[®] and riprap to restore 30 acres of salt marsh.

Installation Date: 2010

Monitoring: erosion, accretion, bathymetry, oyster recruitment, fisheries, vegetation sampling, and soil and water sampling.

Project success: Good. Sediment is compacting, erosion gaps between WADs stabilizing, marsh plants are expanding, large amount of nekton, oysters are settling on WADs.



Gulf Hills Coir Log Project, Ocean Springs, MS

- **Location:** Old Fort Bayou, Ocean Springs, MS
- **Erosion Rate:** Low
- **Project Size:** 270 feet
- **Project Design:** 200 feet of Coir Logs staked at the MLWL and planted Black Needlerush
- **Installation Date:** September 2009
- **Monitoring Parameters:** Erosion, Accretion, and Survival and Growth of Vegetation
- **Project Status:** Good Condition



Bayou Heron Boat Ramp at Grand Bay NERR

- Project Location: Moss Point
- Project Size: 170 feet
- Project Design: used coconut fiber logs, backfilled with sand, and planted native black needle rush (*Juncus roemerianus*) to protect boat ramp from erosion
- Installation Date: Late Fall 2009
- Monitoring: Erosion, Accretion, and Plant Survival
- Project Status: very successful, planning to potentially do some site maintenance in near future



2010 Deer Island Restoration Project, Biloxi, MS

- **Location:** Northeast corner of Deer Island
- **Erosion rate:** High
- **Project Size:** 800 linear feet
- **Project Design:** Breakwater berm built using recycled oyster shell bags composed of wire mesh (chicken wire). The breakwater was designed to be covered slightly at high tide and exposed during low tide
- **Monitoring Parameters:** oyster spat recruitment, water quality (temperature, salinity, dissolved oxygen), and erosion rates (using rulers and photographs at low tide).
- **Project Success:** Moderately successful



MS DMR



2013 Deer Island Restoration Project, Biloxi, MS

- Erosion rate: High
- Project Size: 1,600 linear feet
- Project Design: 160 coconut fiber coir logs (20 in. diameter X 10 long) were staked and placed along shoreline and 8,000 oyster shell bags (poultry netting) were installed 10 feet off shore to create a breakwater
- Monitoring: 10 half meter oyster quadrats sampled (180 oysters and spat/m²) and coir logs are monitored.



Potential Living Shorelines Monitoring Parameters

- **Hydrology:** precipitation data, water depth (bathymetry), depth to ground water, tidal flow
- **Water Quality:** dissolved oxygen, nutrients, pH, salinity, suspended solids, and temperature
- **Soils:** pH, bulk density, organic matter, nutrients, and texture
- **Vegetation:** plant and seedling survival, species composition, biomass production
- **Fauna:** species composition, species richness and abundance, population distribution
- **Erosion (pre- and post), accretion, longshore transport (pre- and post), and shoreline shape should be measured over time**
- **Status of living shoreline structures (sinking, shell settlement, storm damage, ageing, etc.) to determine maintenance needs**

Water Access is Essential for All of Us

Let's Protect our Remaining Natural Resources!

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