



# North Carolina Coastal Federation

CITIZENS WORKING TOGETHER FOR A HEALTHY COAST

## Living Shoreline Projects in North Carolina

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**Citizens Working Together for a Healthy  
Coastal Environment**



# Living Shorelines- Combining Erosion Control with Restoration Goals



- No Action
- Relocation of Threatened Structures
- Non-Structural Stabilization Measures (Slope Grading, Marsh Creation, Bio- Engineering, beach nourishment)
- Combination Approaches (Sills, Stone containment cells, etc. with plantings)
- Hardening Structures (Groins, Revetments, Gabions, Bulkheads)



# Beach Nourishment and/or Marsh Planting

Cape Lookout Lighthouse



Harkers Island, NC



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# Hybrid Projects



← Low-profile sill

Riprap revetment →



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# Biologs/ Native Plantings









# Oyster Shell Patch Reefs/ Sills



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# Carrot Island- NC NERRS- Rachael Carson Reserve

## Sustainable Estuarine Shoreline Stabilization: Research, Education and Public Policy in North Carolina

A Final Report Submitted to

The NOAA/UNH Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET)

Project Start Date: 9-1-2008

Submitted by:

Dr. John Fear<sup>1</sup>  
Dr. Carolyn Currin<sup>2</sup>

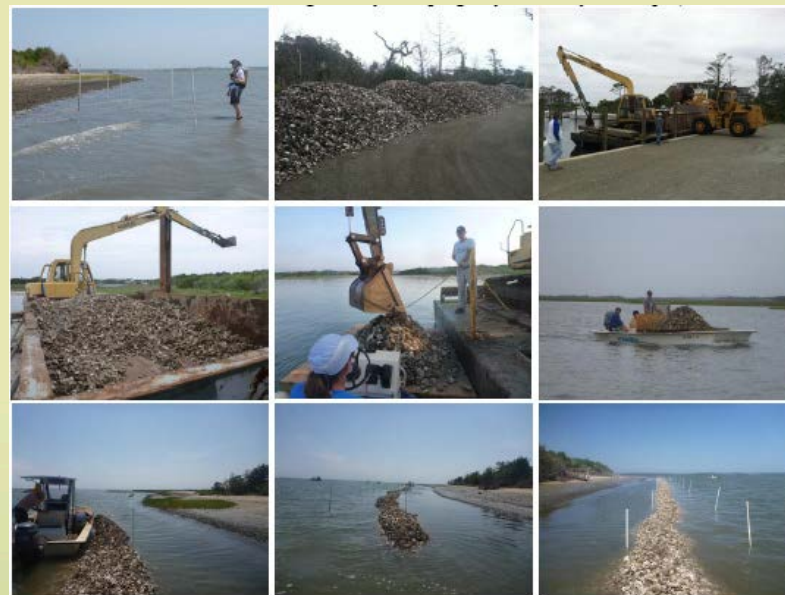
1: North Carolina National Estuarine Research Reserve - N.C. Division of Coastal Management, 101 Pivers Island Rd., Beaufort, NC 28516

2: Center for Coastal Fisheries and Habitat Research, NOAA, 101 Pivers Island Rd., Beaufort, NC 28516

October 31, 2012

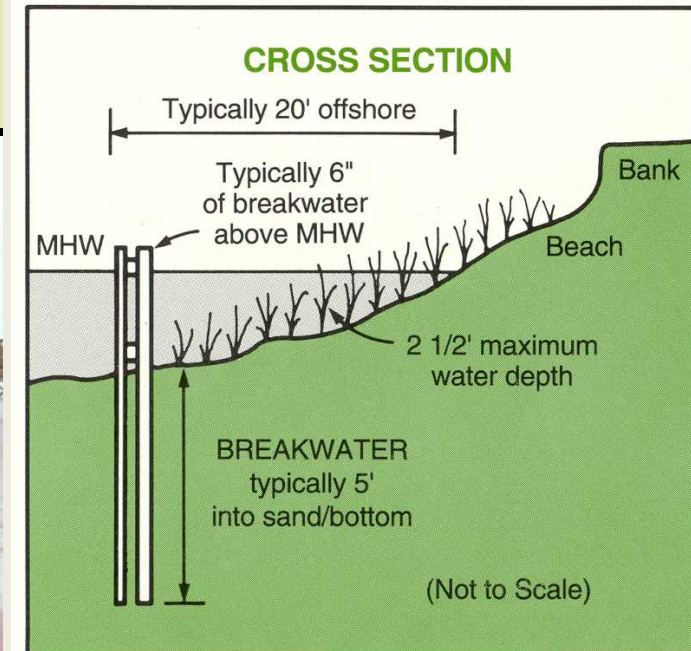


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# Vertical Wall Sills/Marsh Plantings



From Spencer M. Rogers, Jr., N.C. Sea Grant



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**CAMP LEACH    2 YEARS  
AFTER CONSTRUCTION**





**CAMP LEACH 5 TO 7 YEARS  
AFTER CONSTRUCTION**





**CAMP LEACH 9YEARS  
2 YEARS AFTER REMOVAL**





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# Edenhouse Boat Ramp- Chowan River



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# Roanoke Island Festival Park- Manteo, NC





## NC STATE (CMAST) - Carteret Community College- Pre- Restoration

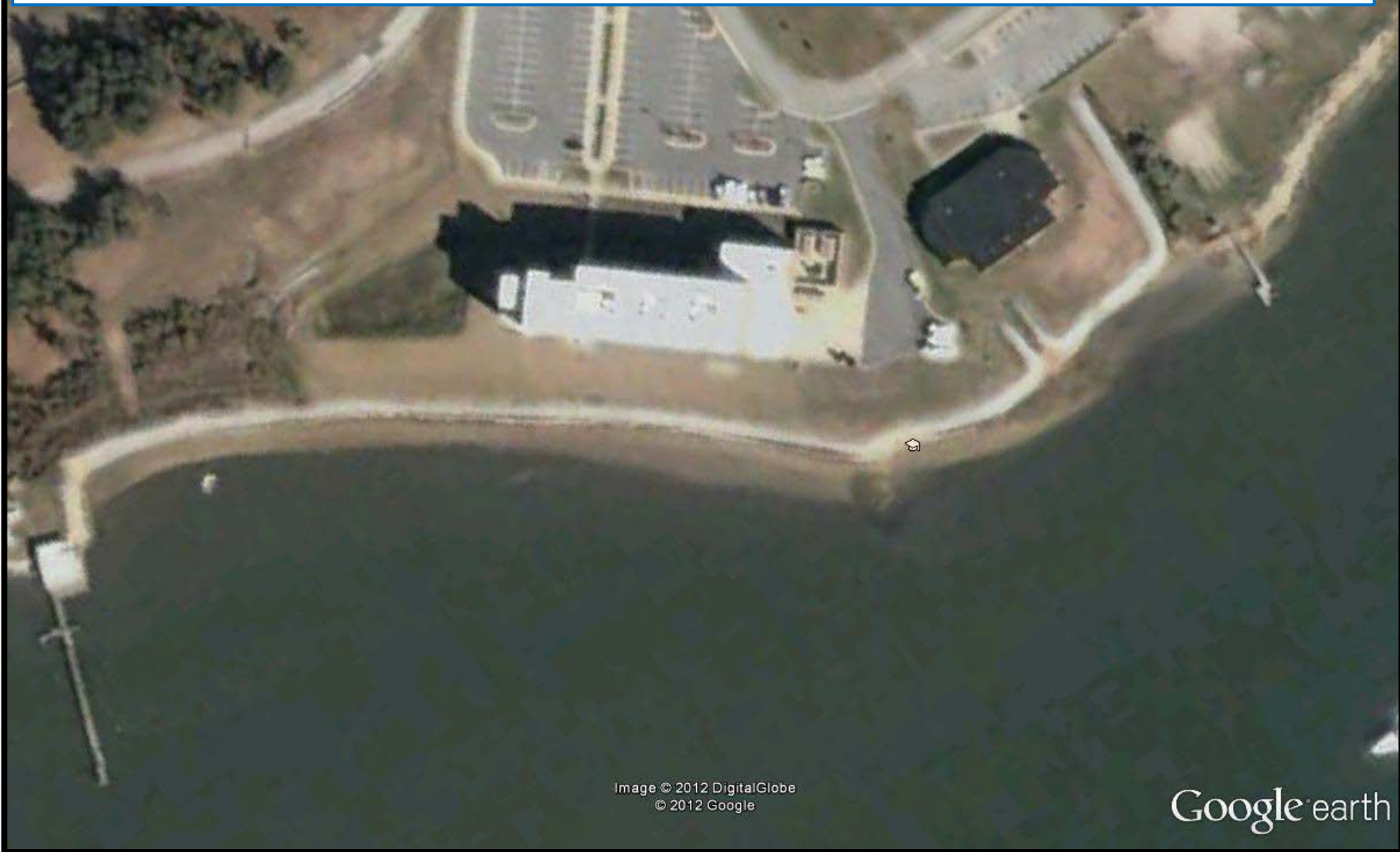


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**After Restoration**

**Stormwater  
Wetland**

**Reef  
Balls**

**Oyster  
Shell  
Bag Sill**

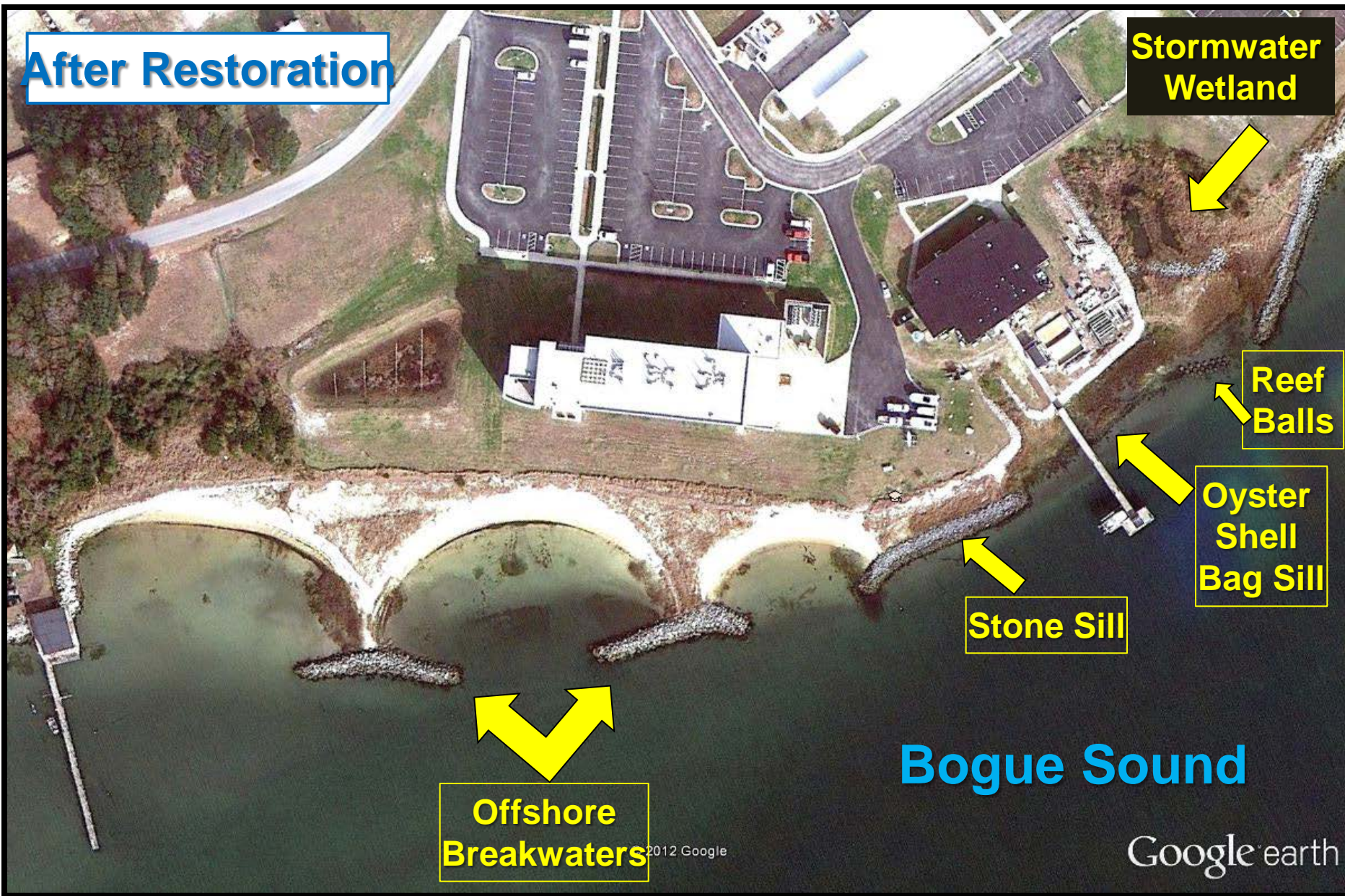
**Stone Sill**

**Offshore  
Breakwaters**

**Bogue Sound**

Google earth

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# CMAST Carteret Community



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# Morris Landing Preserve- Stump Sound









# Morris Landing- Stump Sound



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