



North Carolina
Coastal Federation
Working Together for a Healthy Coast



Living Shorelines

Case studies from North Carolina (and Beyond)

Tracy E. Skrabal, Coastal Scientist



North Carolina Coastal Federation

Working Together for a Healthy Coast



“We share in the responsibility
to protect and restore our coastal
public trust resources.”

Todd Miller, Executive Director

Our Approach

Since 1982, the Coastal Federation has worked to protect and restore the coastal water quality and habitats throughout the N.C. coast.

This is how we do our work:



We Collaborate

From community groups to local businesses to research institutions to government agencies. We achieve long-lasting results by working together.

We Advocate

We take action by engaging people from all walks of life in decisions about the future of our coast. Our daily presence in the N.C. General Assembly seeks laws and policies that are in the best interest of the coast and the communities that depend on it.



We Restore and Protect

In the field, we restore and protect critically important habitats and water quality.

By building and preserving:

- living shorelines
- oyster reefs
- wetlands
- & native coastal forests

We Educate

- Service learning and community projects
- Outdoor and hands-on education using local environmental issues
- Create coastal stewards and informed decision-makers.

We Inform

- Coastal Review Online (CRO), is our award-winning, daily, not-for-profit news and feature service covering the N.C. coast.
- A member of the N.C. Press Association.

Hierarchy of Erosion Control Options

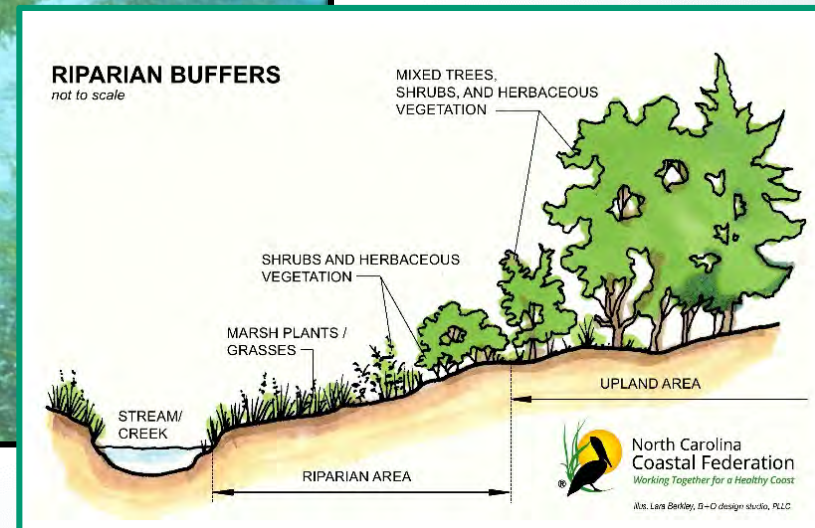
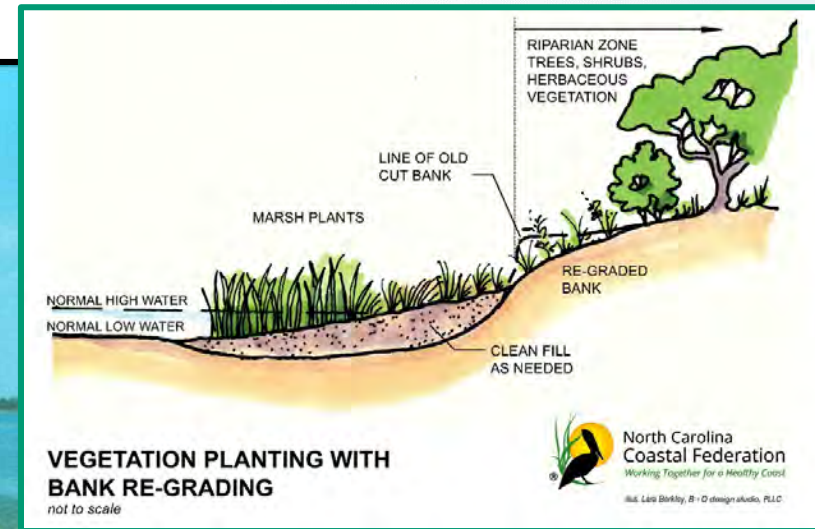


- No Action
- Relocation of Threatened Structures
- Non-Structural Stabilization Measures (Slope Grading, Marsh Creation, Bio- Engineering, beach nourishment)
- Combination Approaches (Sills, Stone containment cells, breakwaters with plantings)
- Hardening Structures (Groins, Revetments, Gabions, Bulkheads)

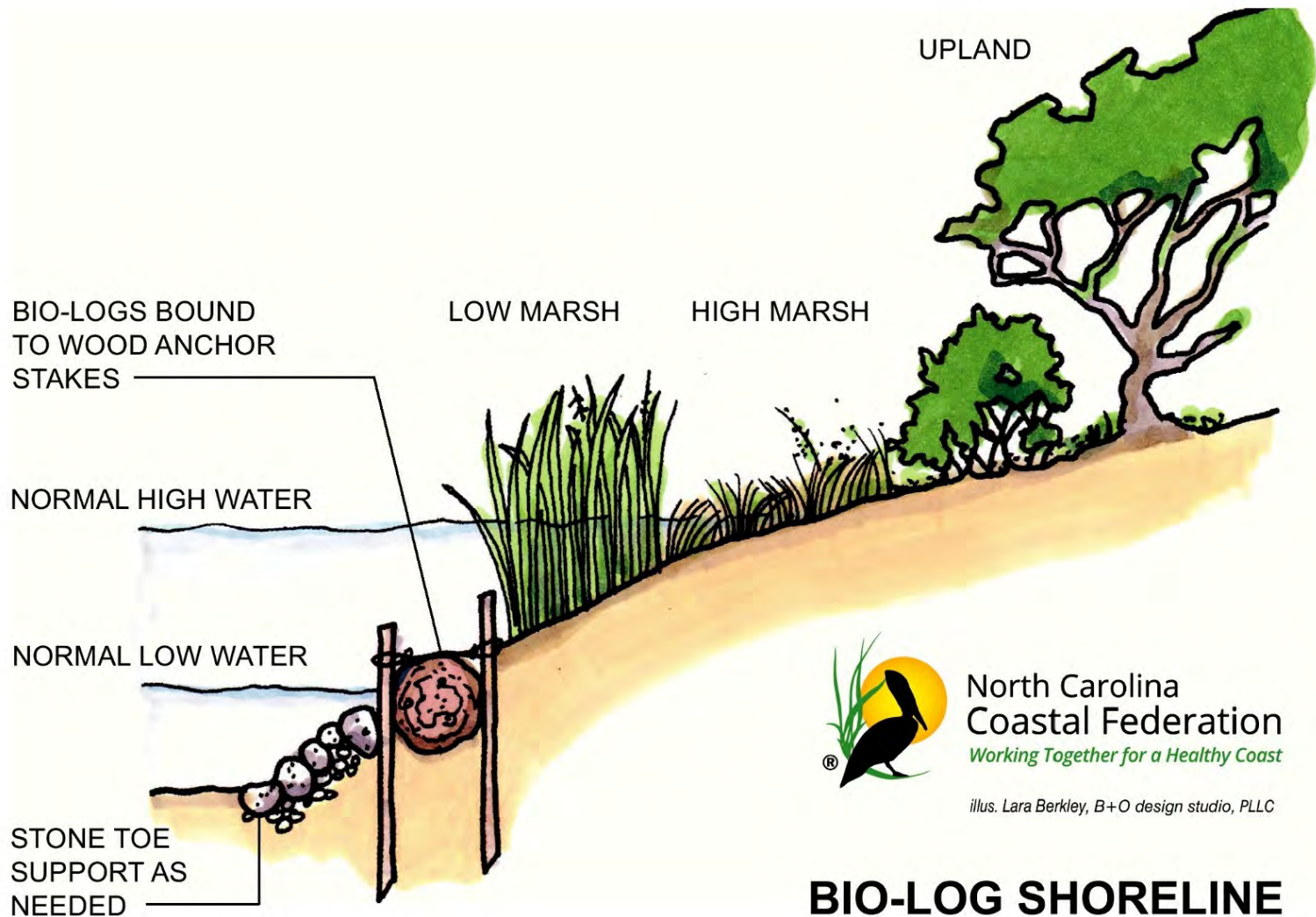
Cape Lookout Lighthouse



Bank Grading, Riparian Buffer/Marsh Creation/Restoration/Preservation



Biologs



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illus. Lara Berkley, B+O design studio, PLLC

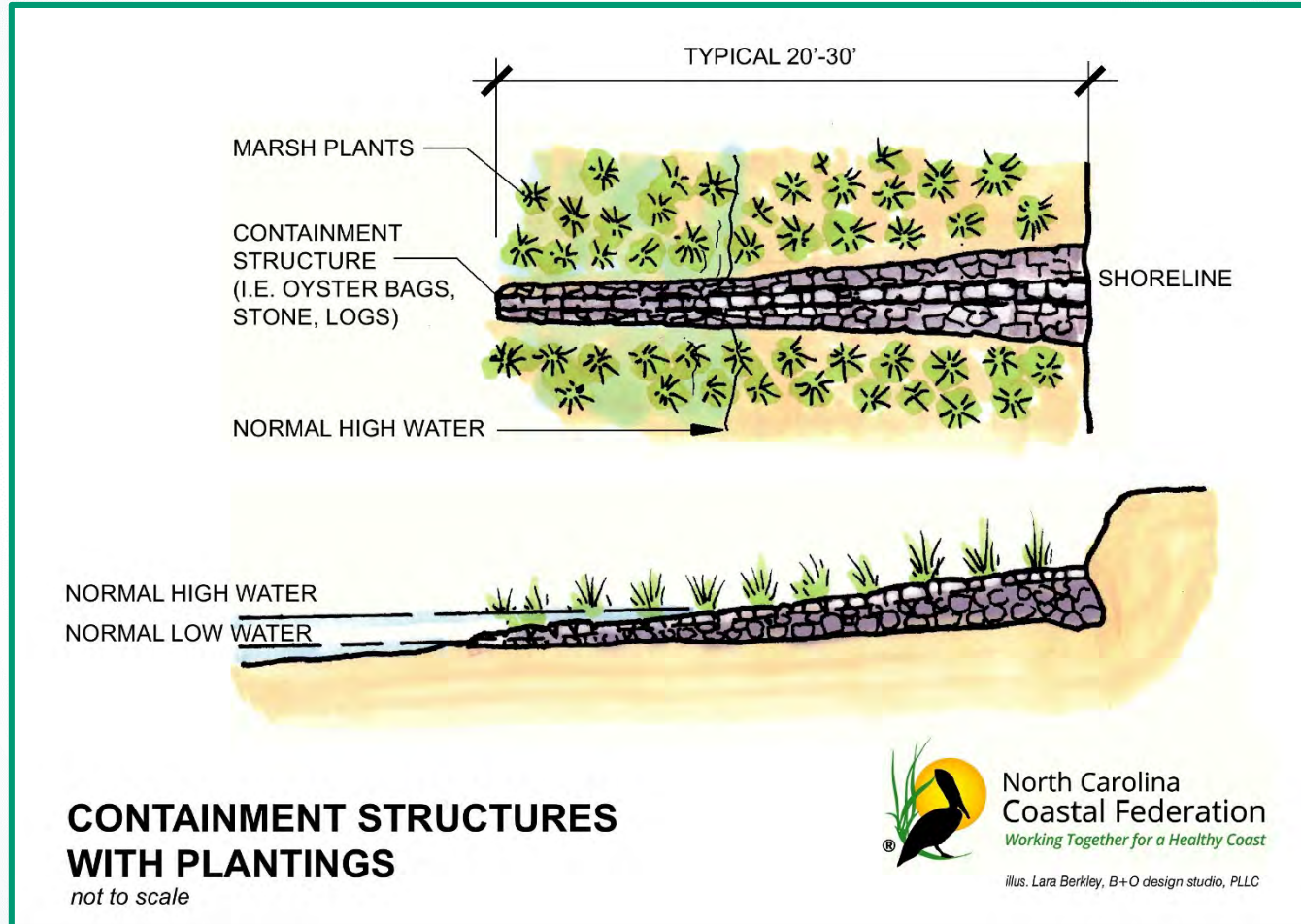
BIO-LOG SHORELINE
not to scale



Combination/Hybrid Projects

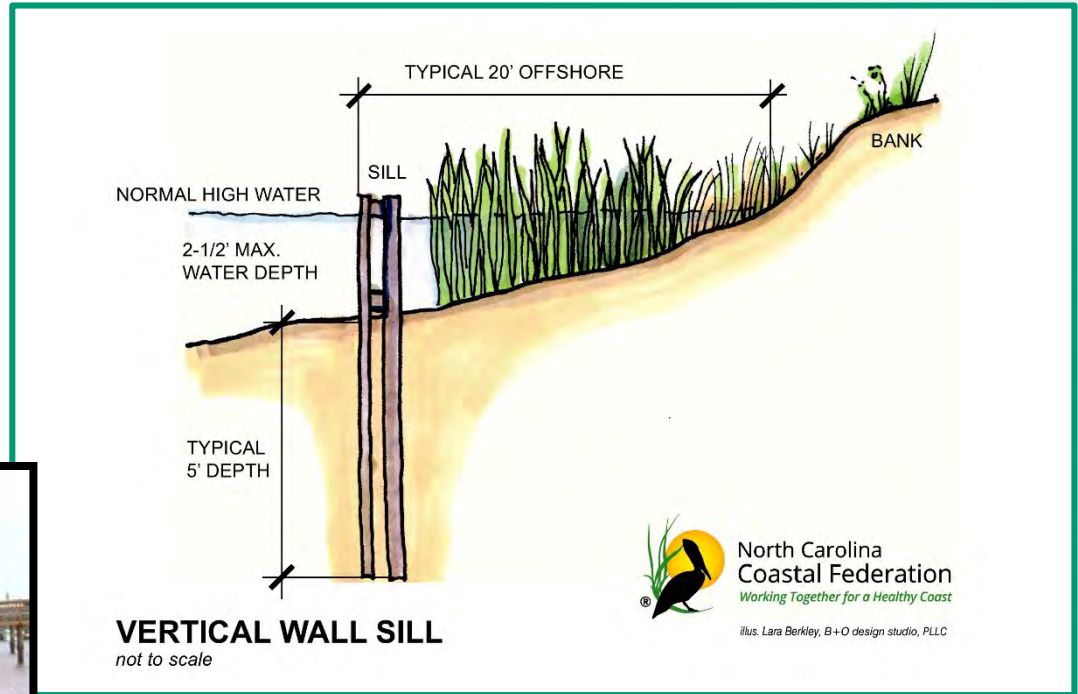


Containment Structures with Plantings





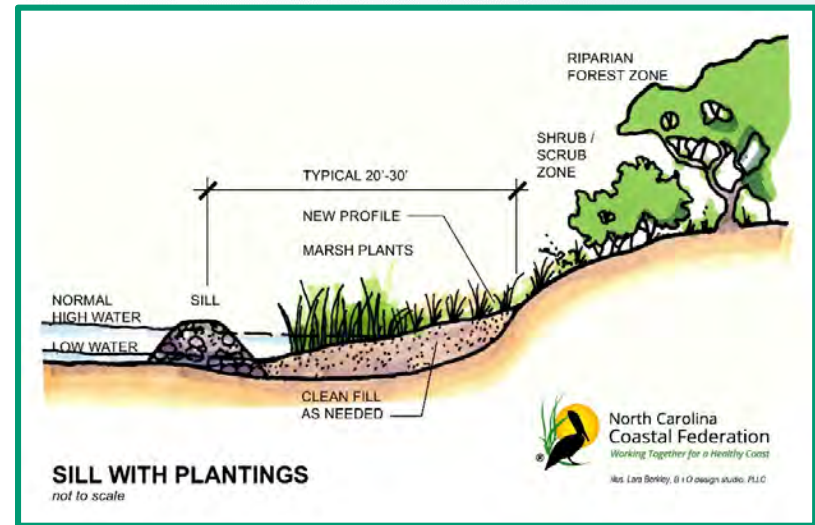
Vertical Sill with Marsh Plantings



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



Stone Sills with Marsh and Riparian Buffer Plantings



← Low-profile sill

Riprap revetment →



Pre-project – 2004



August 2005



July 2007



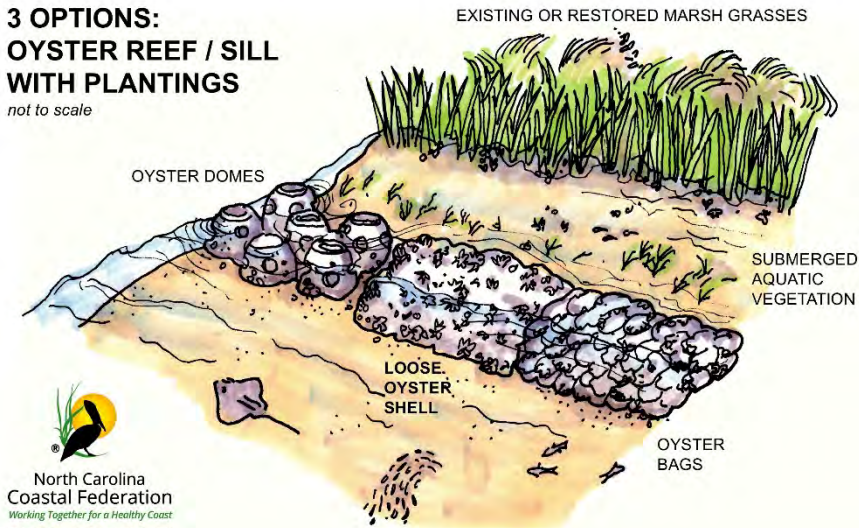
July 2007



Oyster Shell Patch Reefs/ Sills

3 OPTIONS: OYSTER REEF / SILL WITH PLANTINGS

not to scale



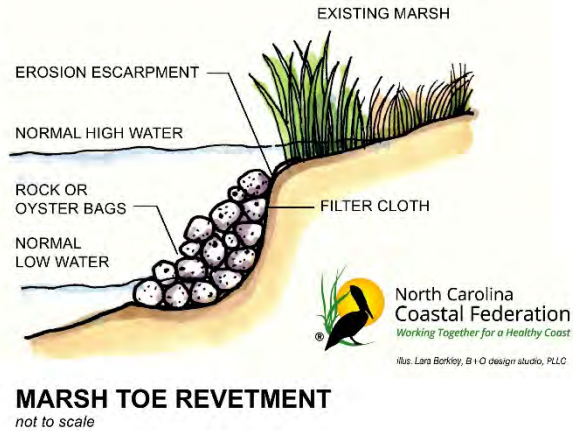
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Living Shorelines with Oyster Domes



Marsh Toe Revetments



Oyster Shell Bag Sills at Jones Island (1,350 linear ft.)





Oyster Shell Bag Sills at Jones Island



Loose Oyster Shell Approaches



Loose Oyster Shell Reef- Stump Sound, NC



Post- Hurricane Matthew Morris Landing, NC



Photos courtesy of L. A. Jansen

NOAA Lab- Pivers Island Post Hurricane Matthew 10/27/16_ C. Currin



Photos by Carolyn Currin- NOAA

Camp Albemarle Bulkhead vs. Living Shoreline Post Hurricane Florence



Sunny Point Lane, Broad Creek (Blakely and Wargin Properties) Storm Surge During Hurricane Florence



Sunny Point Lane, Broad Creek (Blakely and Wargin Properties) Post- Hurricane Florence Living Shorelines



White Oak River (Roberson and Hardison Properties) Post Hurricane Florence





Living Shoreline Academy

Advance science, policy and practice of living shorelines

livingshorelinsacademy.org

- Increase the overall abundance of wetlands/estuarine resources (RAE)
- Develop and provide targeted outreach to living shorelines professionals
- Provide information about LS options and benefits for waterfront landowners
- Enhance collaboration among governmental, researchers and private LS community



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LSA Online Component

Key Elements

- Online training modules
 - Two target audiences (lay persons, and professionals)
- National Database of LS project databases
- National Database of Highlighted LS projects
 - Mapped and searchable
- Database of literature
 - Secondary literature: Peer-reviewed and searchable
 - Primary- *future* compilation with sources
- Catalogue of existing living shoreline resources
- Searchable database of professionals
- LS Forum – Established /transferred by Southern Environmental Law Center's Living Shorelines Forum to Restore America's Estuaries oversight



On-Line Training Modules

Living Shorelines, Living Coasts(Parts I and II)

- LIVING SHORELINES, LIVING COASTS (PART I)
Shoreline Erosion and Living Shoreline Methods: An Introductory Course for Property Owners and Others Seeking to Learn about Living Shorelines
- LIVING SHORELINES, LIVING COASTS (PART II)
Living Shoreline Project Planning and Implementation: An Introductory Course for Professionals



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LivingShorelinesAcademy.org



[ncoast.org/Protect the Coast/ Our Work](http://ncoast.org/Protect%20the%20Coast/Our%20Work)



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