

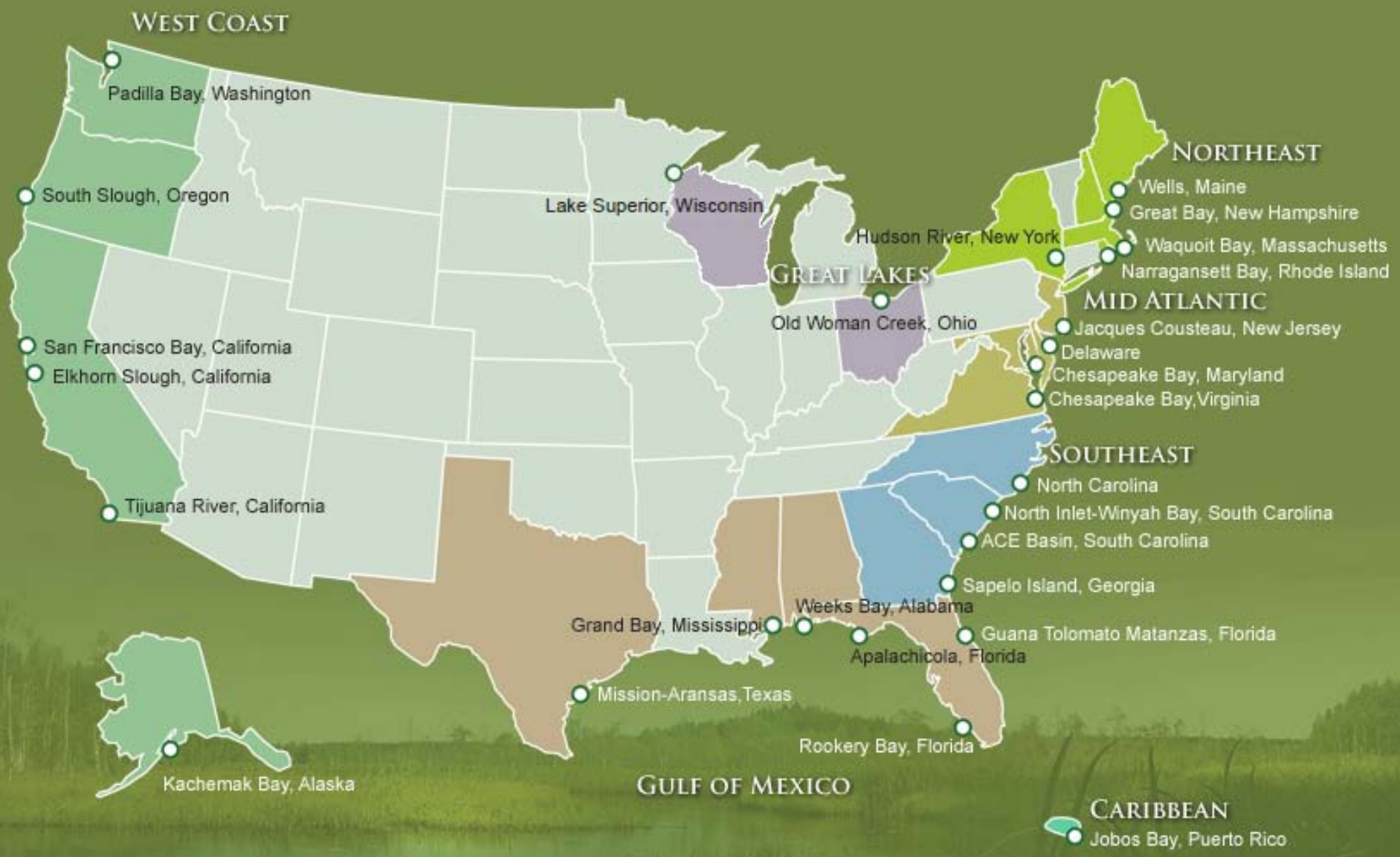
# 2011 APNEP Estuary Education and Awareness Campaign



**North Carolina Coastal Reserve &  
National Estuarine Research Reserve**



# 28 National Estuarine Research Reserves

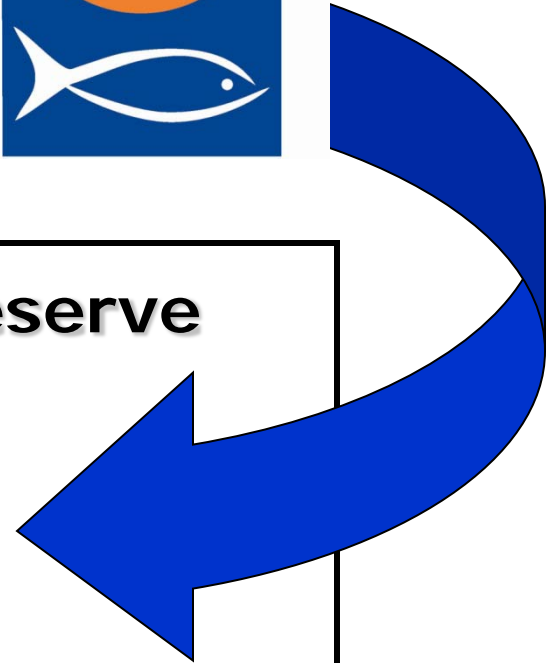
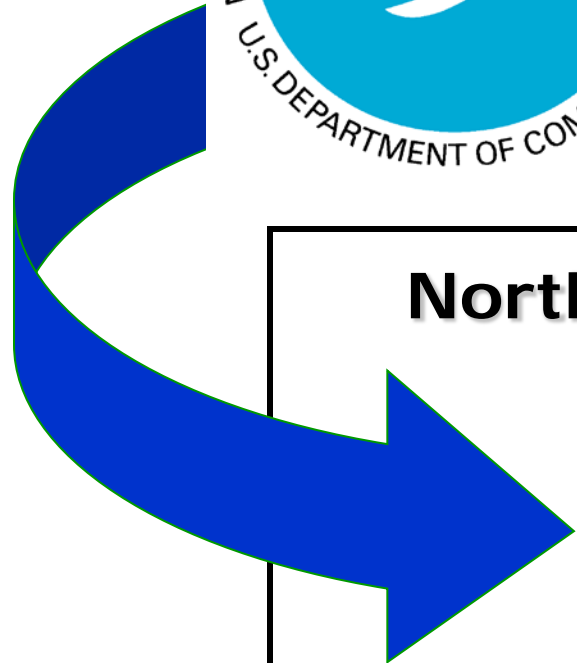




**North Carolina Coastal Reserve**



**North Carolina  
National Estuarine Research Reserve**





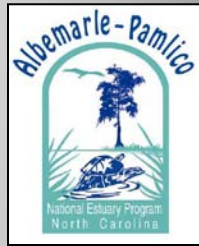
# North Carolina Coastal Reserve (CR), including the National Estuarine Research Reserve (NERR)







# Education and Awareness Campaign

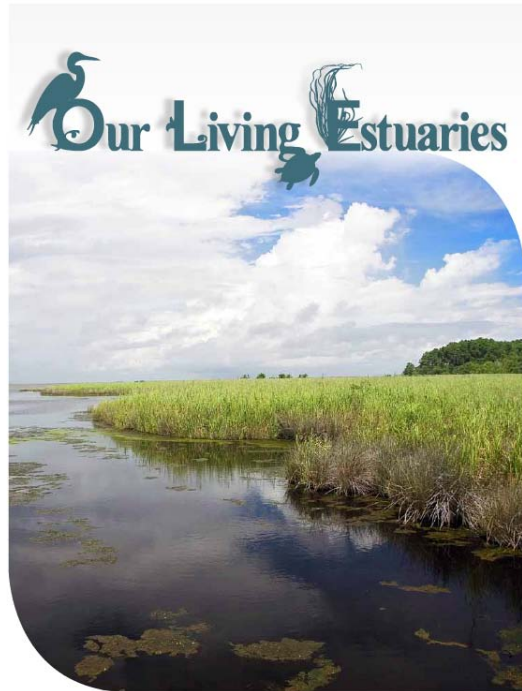


- Awarded Spring 2011
- Reserve already created a suite of outreach materials on estuarine shorelines

## Weighing Your Options



**How to Protect Your Property from Shoreline Erosion:**  
A handbook for estuarine property owners in North Carolina



## Estuarine Shoreline Stabilization

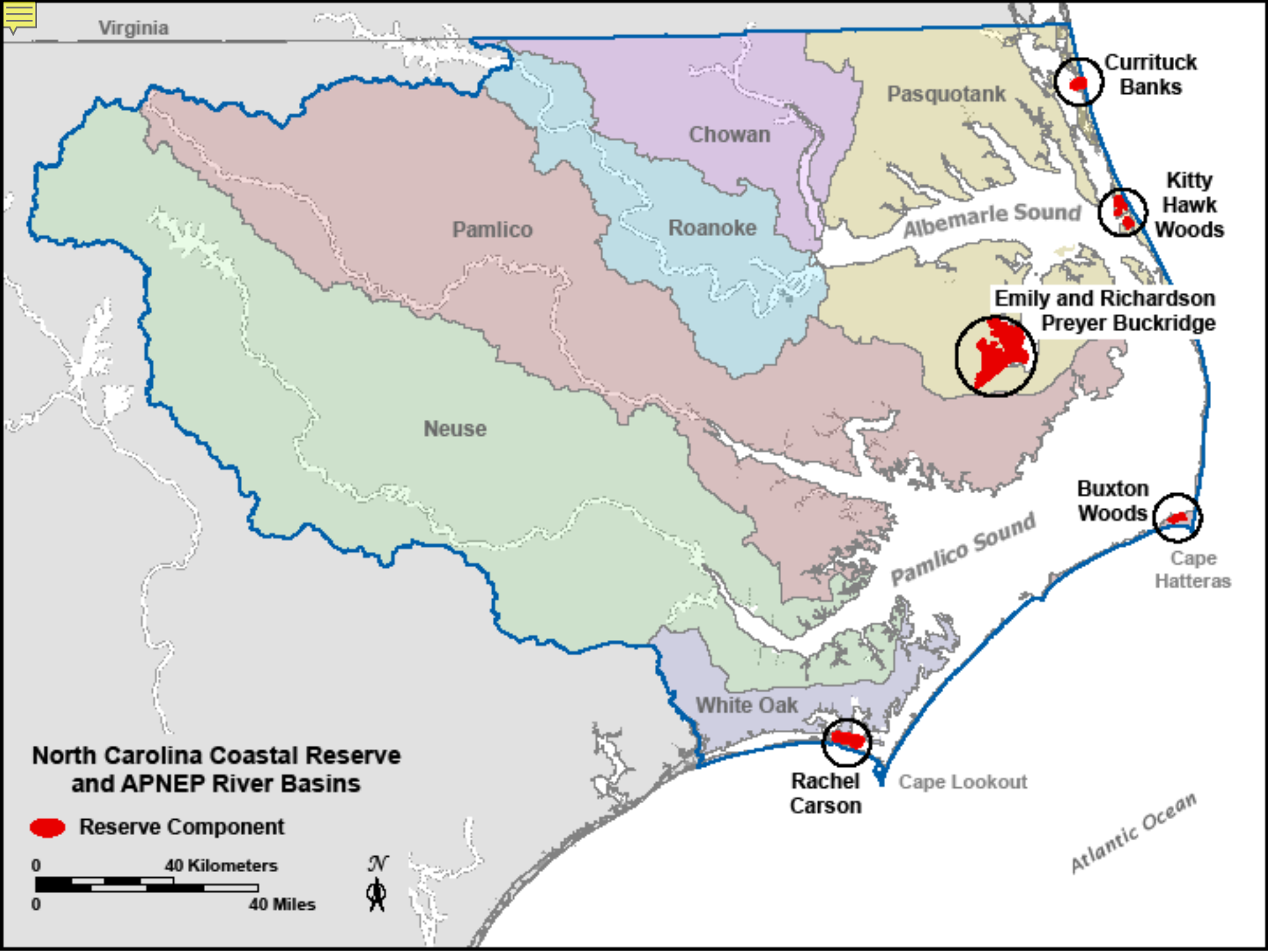
Property Owner's Guide to Determining the Most Appropriate Stabilization Method



Estuarine shorelines are dynamic features that experience continued erosion. Land is lost by short-term processes, such as erosion by storms, boat wakes, and tidal currents, and to the long-term process of rising sea level. As coastal populations increase, states have begun to formulate new policies and management plans that strike a balance between the need to provide for the protection of private property and the need to maintain the integrity of the natural system.

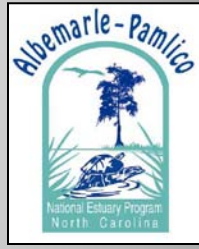
Estuarine erosion management in North Carolina allows property owners to protect their shoreline from erosion, while attempting to minimize the impacts of erosion control structures. These efforts include limiting encroachment and fill on, or waterward of, coastal wetlands, as well as coastal waters. Property owners have the option to stabilize their shoreline with a wide range of vertical and sloped structures. However, due to the reaction of specific shoreline habitats to these structures, it is becoming apparent that some stabilization methods are not appropriate for all shoreline types.

Shoreline stabilization is defined as the use of structures, vegetation, or land management practices to provide protection of a shoreline from future or existing erosion. "Living shorelines" are defined as shoreline stabilization techniques that use natural habitat elements to protect shorelines from erosion while also providing critical habitat for wildlife. This brochure presents information on a variety of shoreline stabilization structures available to coastal property owners and provides a tool to determine the most appropriate stabilization method based upon shoreline type and other site characteristics.





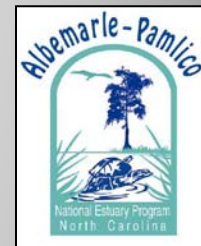
# Education and Awareness Campaign



- Goals are to teach:
  - Value and function of estuarine habitats;
  - How these habitats may be affected by sea-level rise; and
  - Alternative methods of shoreline stabilization.



# Education and Awareness Campaign



- Audience:
  - Formal and informal educators
  - Coastal decision-makers
  - General public
- Products:
  - Two 3<sup>rd</sup>-5<sup>th</sup> grade curricula
  - Teacher workshop
  - Three public field trips
  - Social media information campaign
  - Coastal decision-makers workshop





# Value & Function of Estuarine Habitats

- APNEP region has estimated 8,100 miles estuarine shoreline
- Extremely valuable habitats:
  - Nursery
  - Water quality
  - Shoreline protection





# Sea Level-Rise

- NC coastline is low-lying
- See evidence of sea level-rise in NC
- Can estuarine habitats keep up with sea level-rise?
- Increased erosion of shoreline, salinity, susceptibility to storm surges

# Estuarine Shoreline Stabilization

- Variety of shoreline types in the APNEP region
- Shoreline stabilization is not a one-size fits-all practice
- Shoreline management options:
  - Land planning
  - Hard/structural stabilization
  - Soft/non-structural stabilization
  - Hybrid stabilization






# Estuarine Shoreline Stabilization: Bulkheads



# Estuarine Shoreline Stabilization: Vegetation Control





# Estuarine Shoreline Stabilization: Land Planning





# Estuarine Shoreline Stabilization: Marsh Sill



# Estuarine Shoreline Stabilization: Riprap Revetment



# Estuarine Shoreline Stabilization: Breakwaters





# Products for Educators

- Coastal Explorations Workshop with NC Sea Grant
- Developed two 3<sup>rd</sup>-5<sup>th</sup> grade curricula



*"I really enjoyed the interactive lessons. Participating in the lesson plans helped me understand better techniques in teaching the material."*

- Educator's comment from the workshop evaluation

# Products for Coastal Decision-Makers

## Estuarine Shorelines: Value, Regulations, and Stabilization Workshop

- Included field trip to Jockey's Ridge State Park and NC Coastal Federation marsh sill restoration project



# Products for the General Public

- Three field trips
  - Kayak trip through Kitty Hawk Woods
  - Nature walk on Currituck Banks Reserve Boardwalk
  - Estuary exploration in Kitty Hawk Bay





# Products for the General Public

- Social media public information campaign
  - NC DENR’s Facebook and Twitter pages
  - 14-week “Did You Know?” campaign

*Twitter:*

*DYK? Living shorelines weather strong storms. This photo <http://bit.ly/rpi2C2> compares Jockey’s Ridge marsh sill pre and post Irene #NCS2RY*

*Facebook:*

*DYK? Living shorelines weather strong storms. This photograph (<http://bit.ly/rpi2C2>) compares Jockey’s Ridge State Park’s marsh sill restoration project before and after Hurricane Irene. As you can see, the living shore held up very well through the storm.*





# Future Projects

- Two Coastal Training Program estuarine shoreline workshops in Spring of 2012
- Estuarine shoreline workshop for realtors in North Carolina
- Social media information campaigns

**Thanks Caitlin!**



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