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THE N.C. LIVING SHORELINE STEERING COMMITTEE WORKING STRATEGY FOR THE  
COOPERATIVE EDUCATION, IMPLEMENTATION, RESEARCH AND MONITORING OF  
LIVING SHORELINES AND THE MANAGEMENT OF *PHRAGMITES AUSTRALIS* IN  
COASTAL NORTH CAROLINA

**PURPOSE**

This working strategy document establishes the general framework for the N.C. Living Shoreline Steering Committee (Committee) for the cooperation and participation among the cooperators in the education, implementation, research and monitoring of living shorelines along the coast of North Carolina. It also establishes a general framework for cooperation and participation among the cooperators to explore and develop a management strategy for *Phragmites australis* in coastal North Carolina. This document is considered a living document and will be subject to updates and adjustments as needed with the framework of any changes be through the committee as a whole and may be based on any advice or input from subcommittees of the steering committee.

**Living Shorelines**

Living shorelines are a suite of shoreline stabilization techniques that incorporate live components such as marsh plants, frequently in combination with rock or oyster sill structures. According to the N.C. Coastal Habitat Protection Plan (CHPP), wetland and shell bottom habitat along the shoreline have declined in many areas due to natural erosion and vertical shoreline hardening with bulkheads. Living shorelines offer an alternative for protecting waterfront property, while restoring fish habitat and ecosystem services. Since 2005, progress has been made in documenting, through scientific studies, the benefits and limitations of living shorelines. Research in North Carolina has shown that living shorelines support a higher diversity and abundance of fish and shellfish than bulkheaded shorelines, effectively deter erosion, and survive storm events well. Education and outreach efforts have been done to increase awareness of this technique to the public and contractors. Nonprofit organizations and DCM have constructed demonstration projects. Despite these efforts, approximately 60 living shorelines have been permitted coastwide, in contrast to 93 miles of bulkheads (based on 2012 DCM mapping). The CHPP Steering Committee requested that efforts continue to focus on encouraging living shorelines to protect property, restore shoreline habitat, and improve water quality.

The development of incentives and the use of cost share programs may make it easier to design, permit, fund and construct living shorelines and may help motivate landowners to restore shoreline property. Technical assistance and education can demonstrate that living shorelines are a viable option for shoreline stabilization.

***Phragmites australis***

Management of the non-native *Phragmites australis*, or the Common Reed is difficult and complex. Once *Phragmites* becomes firmly rooted, it aggressively spreads and grows up to 12 feet high and can diminish a marsh's natural productivity and habitat diversity, and be nearly impossible to eradicate. On July 17, 2017, various groups joined together for a working meeting hosted by the NCCF to discuss the growth of *Phragmites* in North Carolina's coastal marshes. It was concluded and the participants generally agreed that more effort is needed to develop an effective management strategy for *Phragmites*. Future needs were identified, including a solid mapping effort, more North Carolina-specific scientific studies, methods to educate property owners on early identification and treatments, a better understanding of the effect of the plant

community on the coastal region and the effects of the current management approaches on the ecology and on human health. Identifying partners for a working group, obtaining additional funding sources, and creating a pilot management program are the next step in this process.

### **ACTION PLAN**

The goal of the Committee is to support sustainable management of estuarine shorelines in North Carolina. In order to achieve this goal, the following objectives will be established:

(1) Organize the efforts to manage estuarine shorelines by promoting the use of natural and constructed living shorelines where appropriate, in order to maintain natural and productive estuarine and riverine ecosystem processes; and (2) establish a coordinated strategy to manage *Phragmites australis*.

To achieve objective (1), the committee members will work together on the following strategies:

- a. Actively engage and enhance communications with contractors, realtors, and homeowners' associations about living shorelines through workshops, educational materials, educational incentives and demonstration projects.
- b. Facilitate the development of incentives and communicate to property owners about any potential funding assistance and cost share programs.
- c. Continue research to evaluate efficacy and performance of living shorelines and construction materials.
- d. Continue mapping estuarine shorelines to help improve the establishment of appropriate shoreline stabilization methods.

To achieve objective (2), the committee members will work together on the following strategies:

- a. Investigate mapping/detection methods and develop a mapping strategy to identify and monitor populations of *Phragmites* and potential unaffected habitat that may be impacted in the future.
- b. Develop research priorities to better understand the ecological effects of *Phragmites* on fish, wildlife, invertebrates, birds and the plant community and the effects of different management approaches on the environment and on human health.
- c. Develop education materials for property owners to help improve the understanding of identification, introduction and spread of *Phragmites*.

3. This program will encompass the estuarine shoreline of North Carolina.

4. For living shorelines, work will include the following types of activities:

- a. Education and Outreach through
  - workshops
  - educational materials
  - demonstration sites
  - incentive development
- b. Research on
  - structural materials
  - performance
  - design suitability for different environments
  - sustainment of ecosystem functions and services
  - resilience and adaptability to storms and sea level rise
  - social and economic factors affecting shoreline management decisions.

Commented [MT1]: From Rachel G.

c. Continued analysis of existing estuarine shoreline mapping inventory and the development of a geospatial model that matches appropriate shoreline stabilization methods with shoreline type.

5. For *Phragmites* Management, work will include the following types of activities:

a. Education and Outreach through

- workshops
- educational materials

b. Research on

- effects of the plant community on the coastal region
- effects of the current management approaches on the ecology and on human health

c. Mapping

7. The Albemarle-Pamlico National Estuary Partnership in the North Carolina Department of Environmental Quality and the North Carolina Coastal Federation will provide management and coordination for the cooperative Living Shoreline and *Phragmites* Management programs.

**Commented [MT2]:** From Brian B. , I think living shorelines and *Phragmites* are sufficiently different in their needs, management, etc. that there should be serious consideration of separating the two and focusing this committee solely on living shorelines. *Phrag* may fall better under Tim's aquatic invasive group with a subgroup focused alone on *Phrag*.

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**EFFECTIVE DATE**

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