Living Shorelines: Habitat Tradeoff Considerations for Design and Permitting

October 12, 2023

Department of Environmental Quality

Meeting Objectives

- Improve understanding of maintaining and enhancing coastal habitat resilience
- Improve understanding of regulatory considerations for the permitting process
- Consider the latest science on habitat tradeoffs when designing living shorelines to facilitate successful permitting
- Develop habitat tradeoff research needs

Time	Agenda Item
9:00am	**Welcome, Introductions & Agenda Review**
9:15am	**Living Shoreline History –** Where we started
9:45am	**What have we learned about Living Shorelines?** Overview of research on effect on fish, habitat, erosion control, hurricane resilience
10:30am	**15-minute Break**
10:45am	**Climate change and increasing need for coastal resilience –** Review of future predictions, concerns for wetlands and other habitats, review of NC Salt Marsh Plan
11:15am	**Panel Discussion 1: Purpose and subsequent design of living shorelines – maximizing the ecosystem benefits while achieving effective erosion control**
11:35am	**Lunch, provided – 45 minutes**
12:20pm	**Small Group Discussion 1**
1:15pm	**15-minute Break**
1:30pm	**Panel discussion 2: How to evaluate the conversion of one habitat to another as well as protect the public trust**
1:50pm	**Small Group Discussion 2**
2:45pm	**Next steps, action items**
3:00pm	**Adjourn**

NC Division of Coastal Management

NC Dept. of Environmental Quality

Division of Coastal Management

Living Shoreline History

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October 12, 2023

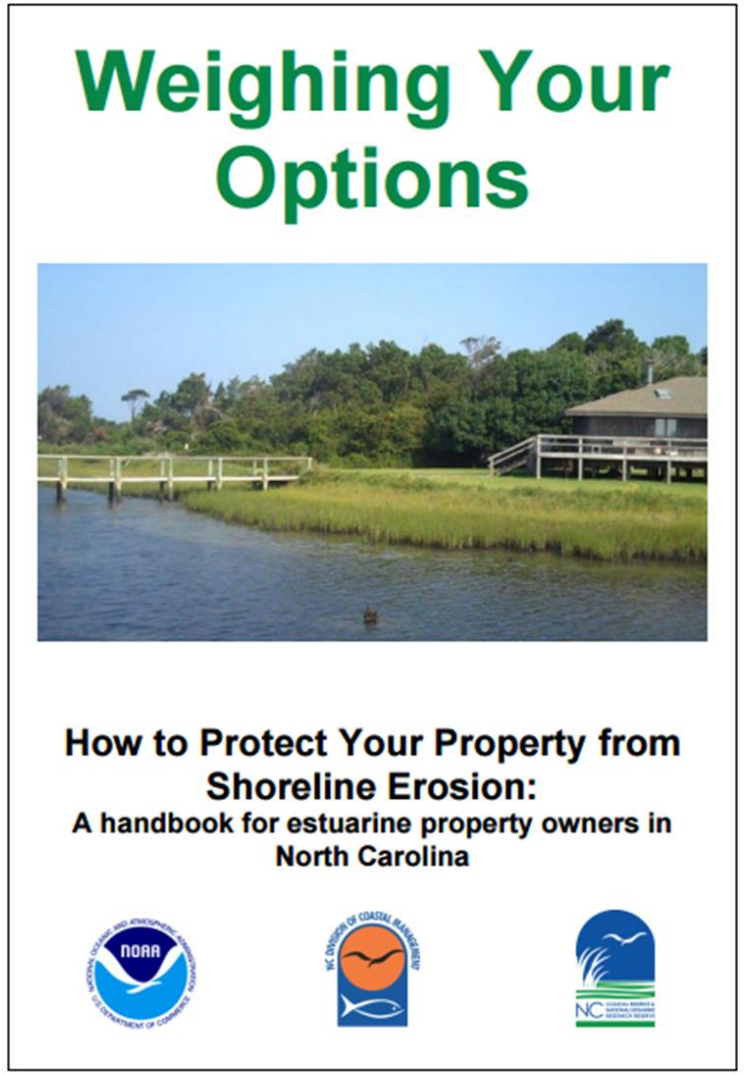
Living Shorelines

Include a suite of options for shoreline erosion control that maintain existing connections between upland, intertidal, estuarine, and aquatic areas which are necessary for maintaining good water quality, ecosystem services, and habitat values. Unlike vertical stabilization measures such as bulkheads, living shoreline techniques typically use native materials such as marsh plants and oyster shells and sometimes, minimal amounts of structural materials (e.g. stone), to stabilize estuarine shorelines, minimize erosion, and enhance habitats.

Living Shoreline Strategy-2014

Short-term actions:

- Amend GP .2700 for Marsh Sills
- Property owner outreach by DCM field representatives
- DCM staff training
- Reprint “Weighing Your Options” booklet
- Property owner, contractor, landscaping professional, and realtor training
- Informational signage at demonstration sites
- Leverage grant resources



Living Shoreline Strategy-2014

- Long-term actions :
  - Data collection, GIS analysis, and product development
  - Marsh sills research
  - Certification program for living shorelines for contractors
  - Partner with the Military to increase living shoreline demonstration sites

Estuarine Shoreline Strategy 2022-2026

Training & Outreach

- Host trainings, provide field staff with the latest research, develop communication products like Storymaps and videos, develop key communication messages, etc.

Research & Monitoring

- Continuing monitoring marsh sills, continue development of marsh sill geodatabase, develop and review research questions, conduct third iteration of estuarine shoreline mapping

Estuarine Shoreline Strategy 2022-2026

Regulatory

- Update CRC on current ES activities, field representatives promote LSs with permittees, finalize system to track LS permits

Coordination & Implementation

- Staff participate in relevant work groups, support implementation of CHPP and Oyster Blueprint, support regional collaboration, develop guidelines for permitting thin-layer sediment application, etc.

CAMA Permits & Authorizations

- **General permits** issued by DCM staff and streamlined for routine projects
  ~ Docks, bulkheads, boat ramps, small-scale dredging, etc.

- **Major permits** reviewed by 9 state & 4 federal agencies
  ~ Beach/inlet projects, marinas…

General Permit 15A NCAC 7H .2700

House Bill 1028 established a G.P. for the construction of riprap sills

Significant discussions during its development

- distance offshore sill structures could be built
- trading one type of habitat for another
- navigational and public trust concerns
- the suitability of such structures
- permitting requirements of other agencies

General Permit 15A NCAC 7H .2700

General Permit (15A NCAC 7H .2700) became effective April 1, 2005 and had 29 specific conditions and required coordination with DMF, DWR, and the USACE

General Permit 15A NCAC 7H .2700

In 2016, USACE created a Nationwide Permit for Living Shorelines

NWPs are issued on a national basis and are designed to streamline USACE authorization of projects that produce minimal impacts to the nation's aquatic environment

Nationwide Permit for Living Shorelines requires a Pre-Construction Notification which adds additional processing time

Stakeholder Meetings

- USACE
- Marine Science Community
- DWR
- DMF
- N.C. Coastal Federation
- N.C. Sea Grant
- NOAA

US Army Corps of Engineers

UNC INSTITUTE OF MARINE SCIENCES

NOAA

UNCW

North Carolina Coastal Federation

Sea Grant North Carolina

DEQ NORTH CAROLINA Department of Environmental Quality

Stakeholder Meetings

- All interested parties' concerns must be addressed within permit conditions
- USACE will use draft amended GP .2700 to explore creating a Regional General Permit (RGP) for Marsh Sills
- RGP would have specific conditions and would not require a Pre-Construction Notification

General Permit 15A NCAC 7H .2700

- Removes coordination with DMF, DWR, and USACE
- No backfilling of the sill structure through GP
- Sills shall not be constructed within any habitat that includes oyster reefs or shell banks. All sills shall have a minimum setback of 10 feet from any oysters, oyster beds, or shell banks
- Sills shall not be constructed within any native submerged aquatic vegetation. All sills shall have a minimum setback of 10 feet from any native submerged aquatic vegetation
- Sill material shall consist of clean rock, marl, oyster shell, or masonry materials such as granite or clean broken concrete or other materials that are approved by the N.C. Division of Coastal Management

General Permit 15A NCAC 7H .2700

- On September 4, 2018 the USACE issued a public notice proposing to authorize a Regional General Permit

- The CRC adopted the amended GP .2700 and it became effective in 2019

Where We Started

Bulkhead vs Marsh Sill

Where We Started

- 2000- technical workgroups formed to develop recommendations for policy changes related to estuarine shoreline stabilization that consider dynamic nature of estuary and ecological functions

- 2005- CHPP Recommendation – "*Protect fish habitat by revising estuarine and public trust shoreline stabilization rules using best available information, considering estuarine erosion rates, and the development and promotion of incentives for use of alternatives to vertical shoreline stabilization measures.*"

- 2006- 2010- CHPP Steering Committee had discussions on ecological impact of bulkheads, permitting concerns, alternatives

CHPP Steering Committee

2006- 2010- CHPP Steering Committee requested:

- Site visits to ~ 27 existing marsh sills (state/federal agencies participated)
- Reduce conditions of the marsh sill GP
- Incentives to encourage marsh sill use over bulkheads (cost share)
- Outreach – NERRs workshops, website materials, surveys
- Research – Comparison of the abundance and species composition at sills, bulkheads, and natural marsh; water quality enhancement, erosion control effectiveness
  - CRFL, CICEET

Initial Agency Concerns (~2008)

- Sill could be hazard to navigation
- Effectiveness of erosion control
- Effectiveness during large storms
- Access for water, fish, birds, reptiles landward of sill
- Fill behind sill could lead to upland creation
- Effectiveness for marsh/ oyster colonization
- Impact on water quality during or after construction
- Effect of bulkheads and marsh sills on fish and invertebrate use compared to natural marsh

Today's Agency Concerns (~2023)

- Effect of habitat conversions:

  shallow unvegetated bottom, SAV, sandy beach → hard structures and marsh
- Effect on state/federal listed species or their designated habitat
- Monitoring needed to assess success of different materials and designs
- Shoreline access for people – public trust rights (fishing, recreation, navigation)
- Purpose and need for large sills (height, width, length, distance from shore)