

Best Practices for Working with Marsh Plants and Oyster Shell

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North Carolina
Coastal Federation
Working Together for a Healthy Coast



WORKING WITH OYSTERS AND MARSH GRASSES

01

THE FEDERATION

Our Mission

02

MARSH GRASSES

Types, Benefits, and Tips

03

OYSTERS

Life Cycle, Ecosystem Services, and Tips

04

PROJECT OUTCOMES

Living shorelines incorporating
marsh grasses and oysters

05

Q & A

Question & Answers



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Protecting the Coast

Since 1982, the Federation has been in the field restoring miles of coastline; training and educating students, adults, and communities to take actions that result in cleaner coastal waters and advocating for an accessible, healthy, productive coast.

Created to give a united voice to the need for long-term coastal management, the Federation remains a collaborative, grassroots organization at its heart and brings together traditional and nontraditional organizations, government agencies, and businesses in order to achieve what is best for the North Carolina coast and to leave a legacy of clean water for future generations.



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BENEFITS OF MARSH GRASSES

Shoreline Erosion

Marsh plants' root systems grow into and hold onto shoreline sediments



Estuarine Habitat

Plant diversity is a critical foundation for estuarine species' habitats

Food & Shelter

Wetland birds, fish, reptiles, and mammals all utilize plants for food and protection

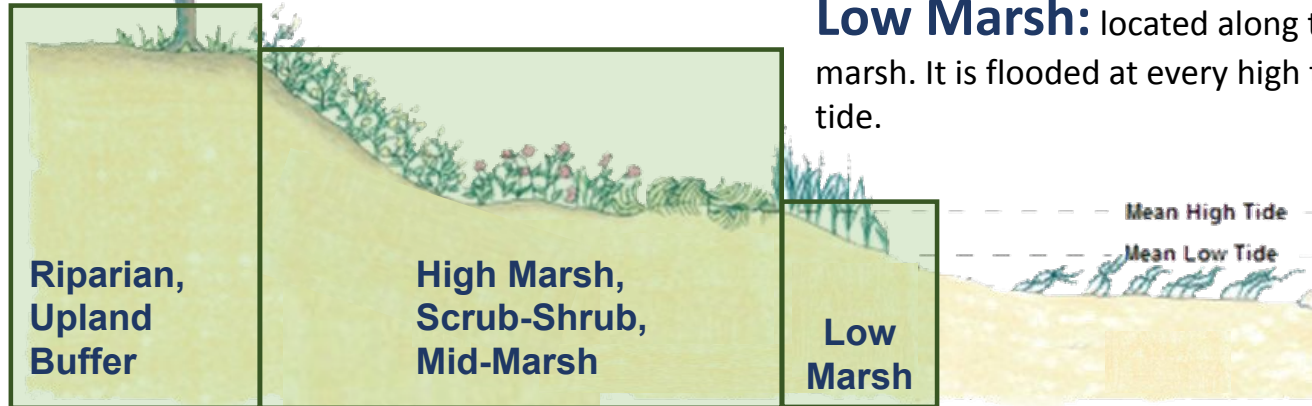


Riparian, Upland Buffer: located at the highest elevation of the slope, it is generally only flooded during extreme storm surges.



High Marsh, Scrub-Shrub, Mid-Marsh: located between the low marsh and the riparian/upland buffer. Plants here can tolerate occasional flooding during extreme events but exist within upland conditions.

Low Marsh: located along the seaward edge of the salt marsh. It is flooded at every high tide and exposed during low tide.



Common Shrubs and Trees Planted for Living Shorelines



Wax Myrtle



Marsh Elder



Yaupon Holly



Bald Cypress



Atlantic White Cedar

Typical North Carolina Saltmarsh Plants



Spartina alterniflora
(smooth cordgrass)



Juncus roemerianus
(black needlerush)



Spartina patens
(saltmeadow hay)

Ordering and Planting Times

- Order in fall
- Plant in April-June
- Plant in spring for 2-3 years
- Trays or boxes
- Trim - "Haircut"
- Grow them in a greenhouse



Nurseries that Grow Salt Marsh Plugs

Note: prices will vary due to weather, availability, demand, shipping costs, and market variability.

Nursery	Location
Garner's Landscaping & Plant Stand	Newport
Wetland Plants Inc.	Edenton
Mellow Marsh Farm, Inc	Siler City
Lumber River Native Plants	Gibson
Mercer Nursery	Lockwoods Folly
Coastal Transplants	Bolivia



When and Where to Plant

- Plant in **April through mid-June** for 1-3 years
- **Where** the species is already present
- Place **close together** and close to existing grass
- If planting an unvegetated area:
 - Smooth cordgrass - below high tide line
 - Saltmeadow cordgrass and black Needlerush-at/above high tide line



How to Plant Marsh Grasses



- 1) Use a dibble bar
- 2) Push dibble bar down six inches deep, move the dibble bar back and forth to make the hole
- 3) Place one plug per hole
- 4) Repeat, planting plugs six inches to one foot apart



Jones Island Living Shoreline



Before Planting



After 1 Year

Jones Island Living Shoreline

Before Planting



After 3 years



After 6 years





BENEFITS OF OYSTER SUBSTRATE

WATER QUALITY



Oysters and other bivalves filter water, healthy populations impact estuarine water quality

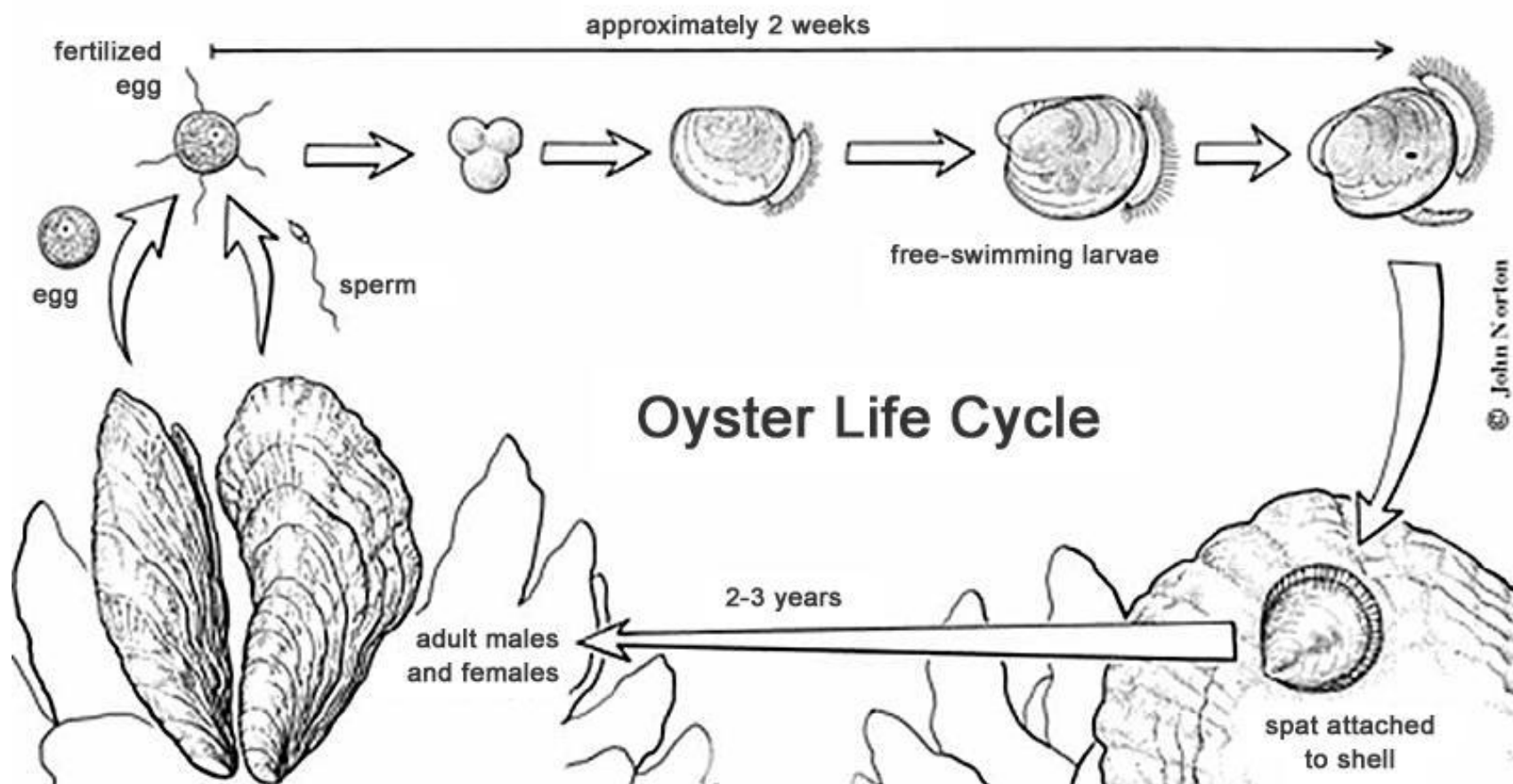
ESTUARINE HABITAT

Reef structures create the foundation for estuarine species' habitats



SHORELINE EROSION

Reef structures act as speed bumps for coastal wave energy, decreasing the shoreline threat



Oyster Life Cycle



Oyster Spat



Oyster Life Cycle



Using Recycled Oyster Shells for Living Shoreline Construction in Oyster Growing Waters





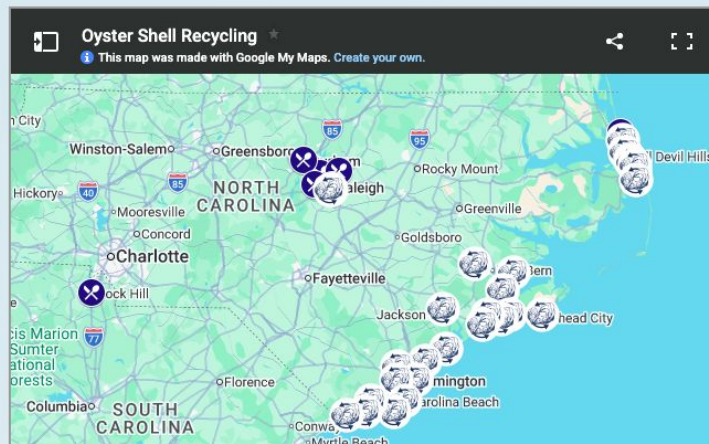
RECYCLE FOR REEFS

Support the North Carolina Coastal Federation
Oyster Shell Recycling Program

Oyster Shell Drop-Off Sites

Shell recycling drop-off sites are located at the Coastal Federation's three regional offices and in the following counties: Brunswick, Carteret, Craven, Dare, New Hanover, Onslow, Orange, Pamlico, Pender, and Wake. Explore the map below, or call us at (252)-393-8185 to find a shell recycling site near you.

On the map below Restaurant to Reef locations are represented by the blue spoon and fork, while Recycle for Reef locations are indicated by the program's logo.



Oyster Habitat Configurations

Loose Oyster Shell

Patch Reefs (Scattered)



Oyster Shell Bags

Marsh Toe Revetment

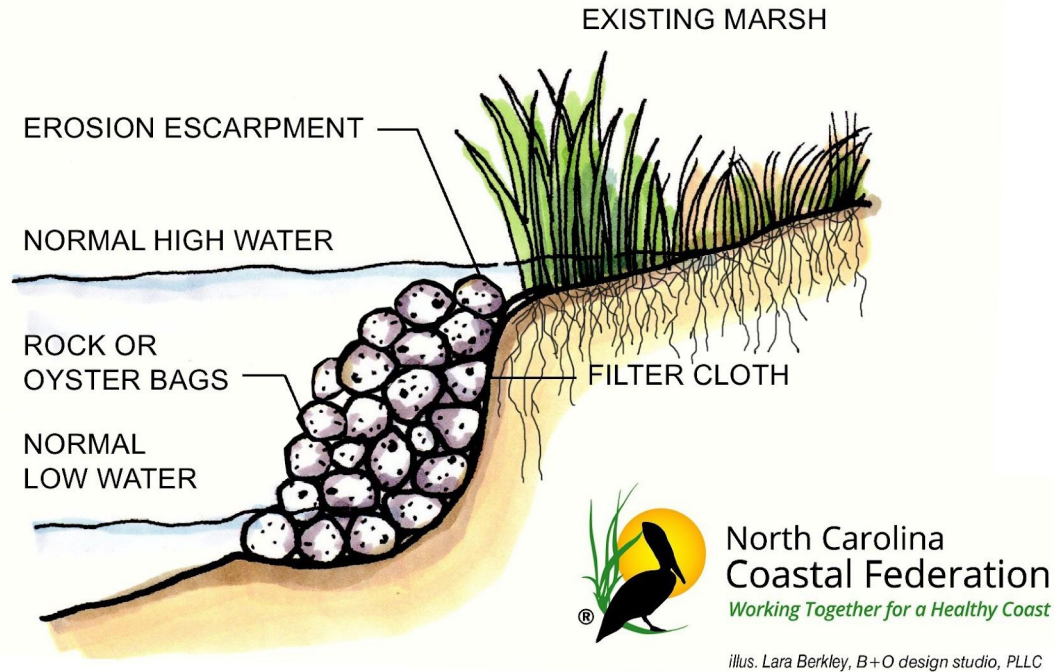


Patch Reefs (Mounded)



Marsh Sill





MARSH TOE REVETMENT

not to scale







PROJECT OUTCOMES



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THANK YOU!

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