



Photo Credit: Vance Miller



Photo Credit: David Cessna



Best Practices for Working with Marsh Plants & Oyster Shell



North Carolina
Coastal Federation
Working Together for a Healthy Coast

September 2021
Rachel Bisesi
Coastal Education Coordinator

North Carolina Coastal Federation

- Nonprofit Organization
 - Three offices
 - 30 staff and 30 board members

Key Goals:

Clean Coastal Waters

Promote Living Shorelines

Restore Oyster Habitat

Effective Coastal Management

Reduce Marine Debris



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Using Plants & Oyster Shells for Living Shorelines

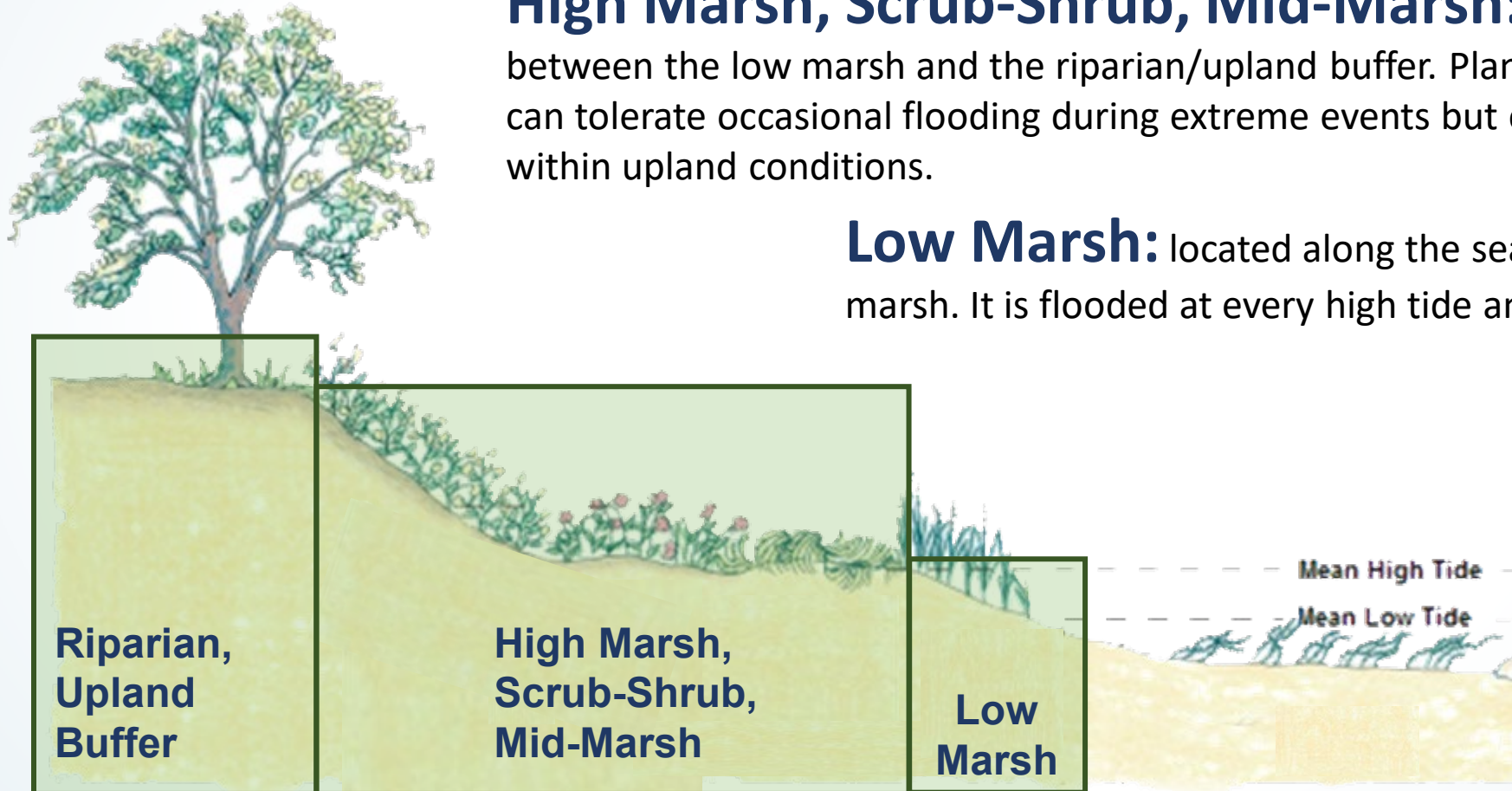


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Riparian, Upland Buffer: located at the highest elevation of the slope, it is generally only flooded during extreme storm surges. It does not experience waterlogged conditions or severe salt stress.

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 Saltwater Marsh Plants



Spartina alterniflora
(smooth cordgrass)



Juncus roemerianus
(black needlerush)



Spartina patens
(saltmeadow cordgrass)

Typical North Carolina Freshwater Marsh Plants

Pickerselweed



Threesquare



Softstem Bullrush



Water Millet



Sawgrass



Nurseries that Grow Salt Marsh Plugs

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
Greenlands Farm	Bolivia
Coastal Transplants	Bolivia



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



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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



When and Where to Plant

- Plant in April through mid-June for 1-3 years.
- If planting an unvegetated area:
 - Smooth cordgrass - below high tide line
 - Saltmeadow cordgrass and black Needlerush- at/above high tide line
- If planting area with existing marsh grass, plant where that species is already present
- Plant close together and close to existing grass



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How to Plant Marsh Grass



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



How to Plant Marsh Grass





Jones Island Living Shoreline



Before Planting



After 1 Year

Jones Island Living Shoreline



Using Recycled Oyster Shells for Living Shorelines

- The shells of oysters that were harvested and consumed



Why are oysters important?



Why are oysters important?



The 3 F's = Food, Filtration, Fish Habitat

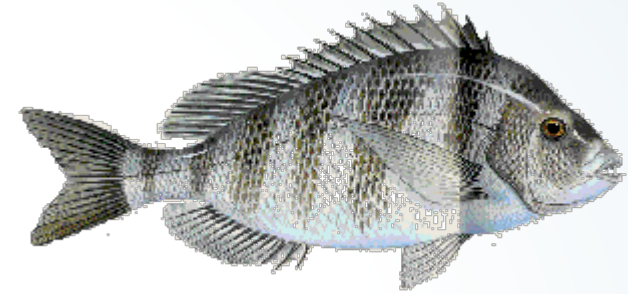
food



**Carteret County leaders
enjoying an oyster roast!**



food



How many gallons of water can ONE
oyster filter in a day?

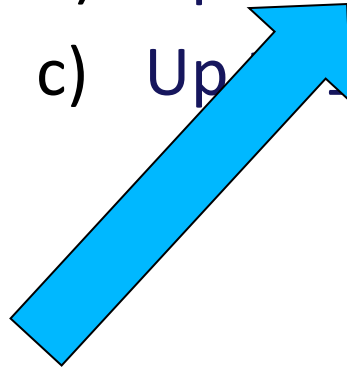
- a) Up to 2 gallons
- b) Up to 50 gallons
- c) Up to 15 gallons



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How many gallons of water can ONE
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- a) Up to 2 gallons
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An adult oyster can filter 25-50 gallons of water a day!

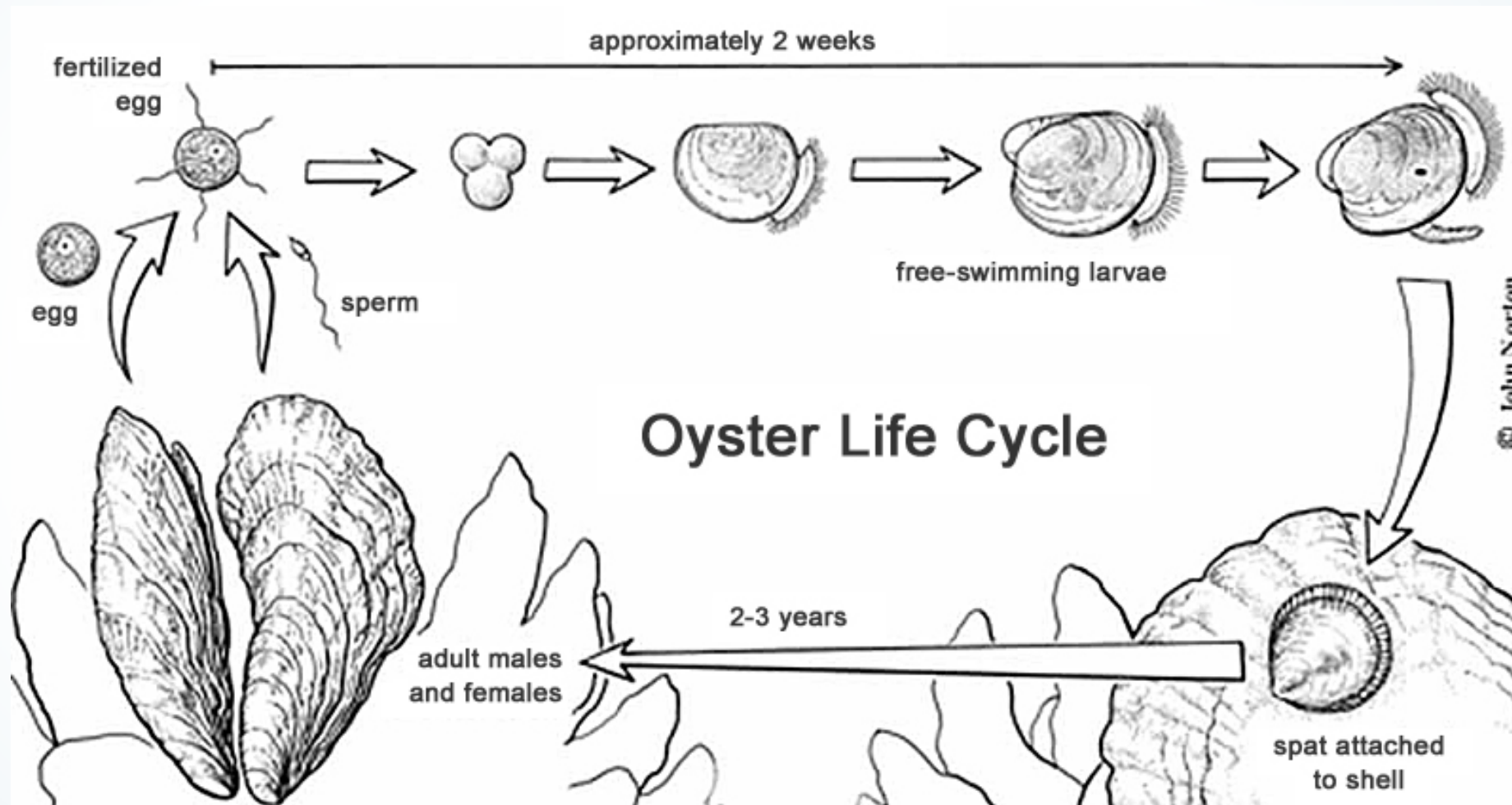
fish habitat



Oyster reefs are full of life!



Oyster Biology



Live baby oysters (Spat) grow on top of recycled oyster shells



Oyster Spat





Live oysters growing on top of recycled shells

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



Using Recycled Oyster Shells

Loose Oyster Shells



Oyster shell bags

Marsh Toe Revetment



Patch Oyster Reefs



Marsh Sill



Using Oyster Shell Bags



Be on the Lookout! Eroding Shorelines



Living Shorelines in front of Soundside Homes



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rachelb@nccoast.org

www.nccoast.org

3609 N.C. 24, Newport, NC 28570

252-393-8185