

North Carolina Coastal Federation Oyster Habitat Restoration Efforts



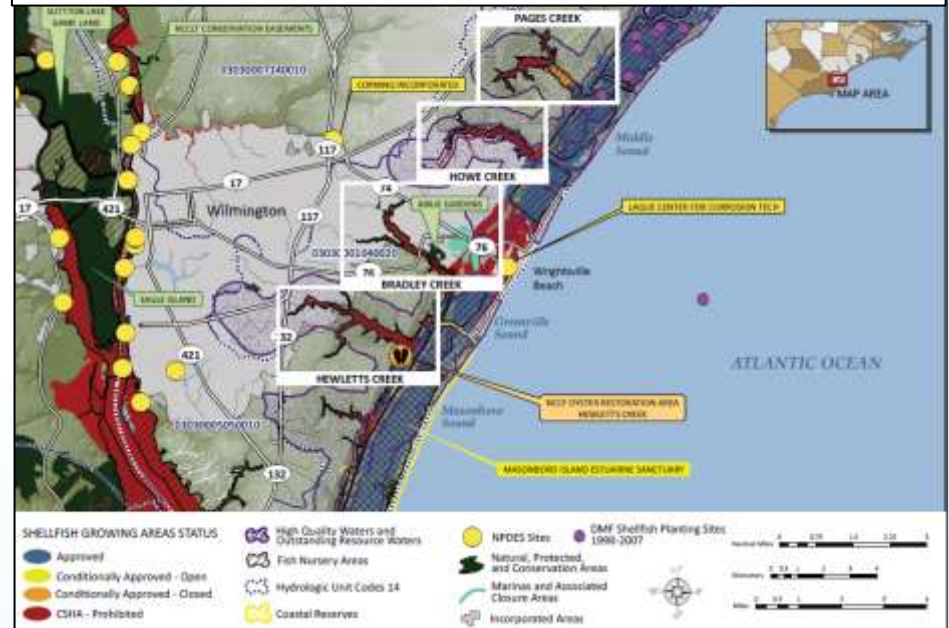
North Carolina
Coastal Federation
Working Together for a Healthy Coast



Watershed Restoration to Oyster Reefs



Bradley & Hewletts Creek Watershed Restoration Plan



Mattamuskeet Ventures, Alligator River Growers, Lux Farms Hydrological/Wetland Restoration Plan

Oyster Reef Restoration Projects (1998-2013)

- Total ~98.01 acres at 30 sites
- ARRA=American Recovery Reinvestment Act



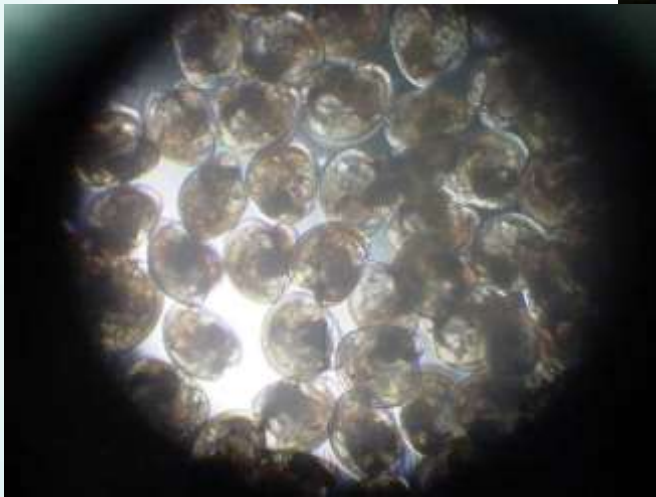
Oyster Habitat Creation Methodology



Reef Construction



Remote Setting & Reef Seeding



Shellbag Reefs – Living Shorelines



Post Project Monitoring



Type	Parameter	Structural or Functional	Method	Goal
reef success	% living	Funct.	quadrats	Hab. restoration
	Size of oysters	Funct.	quadrats	Hab. restoration
	density	Funct.	quadrats	Hab. restoration
	Recruitment	Funct.	tiles	Hab. restoration
	assoc. fauna	Funct.*	quadrats	Hab. restoration
reef arch.	Rugosity	Struct.*	chain method	Hab. restoration
	Footprint	Struct.*	pole probe	Hab. restoration
water quality	Turbidity	Struct.*	secchi	water quality
	Temp.	Struct.	thermometer	water quality
	Salinity	Struct.	refractometer	water quality
	DO	Struct.*	test kit	water quality
	clearance	Funct.	Grizzle equation	water quality
other	Sediment'n	Struct.	tile	--
	Current velocity	Struct.	estimate	--
	substrate	Struct.	observe	--
	other	Struct.	site conditions	--

Lessons Learned

- 1) Shallow subtidal areas - low relief, patchy clumps of shell
- 2) Intertidal - matrix of patch reefs mirroring height and shell thickness of existing natural reefs
- 3) #4 marine limestone (marl) suitable reef substrate in a variety of conditions, and should be tested more
- 4) Low density reef seeding with spat on shell in southern region does not appear to enhance oyster densities/abundances
- 5) Conducting oyster restoration activities in closed/polluted areas avoids user conflicts; more potential for restoration; but some consider it “wasting” of cultch material
- 6) Shoreline oyster shell bags remained in a variety of conditions
- 7) Pyramid-shaped oyster shell bag sills recruited more oysters than cubed sills. More recruitment observed on waterward sides
- 8) Need to consider settling of oyster shell bags when determining the number of layers needed to achieve the desirable height of oyster shell bag sills. Use marl bags for bottom layers.