



North Carolina Coastal Federation

CITIZENS WORKING TOGETHER FOR A HEALTHY COAST

**A Practical Guide for Restoring
Degraded Estuaries:
Let No Tool Gather Dust**





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Founded in 1982
501(c)(3) Non-profit
10,000 Citizen Members
150 Affiliated Groups
28 Board Members
Staff of 19

Advocacy • Education • Restoration/Preservation



Today's Panel: Four Presentations

- How to Restore a River: Using All the Tools in the Toolbox: *Todd Miller, Executive Director*
- Buffering a River with Dollars: More than \$21 Million Restores a Vital Coastal Estuary: *Christine Miller, Assistant Director*
- Restoring Estuarine Habitat, One Oyster Shell at a Time: *Dr. Lexia Weaver, Coastal Scientist*
- A Backyard Gem: No Community Left Inside (Or With Dry Feet): *Sarah Phillips, Coastal Education Coordinator*

How to Restore a River: Using All the Tools in the Toolbox



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How NCCF Works

Focuses on citizens and their communities:

- Ordinary people who do extraordinary things
- Places not generic issues

Uses all tools available:

- Education
- Advocacy
- Preservation
- Restoration



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Why Focus on the White Oak River?

Focus on specific places because:

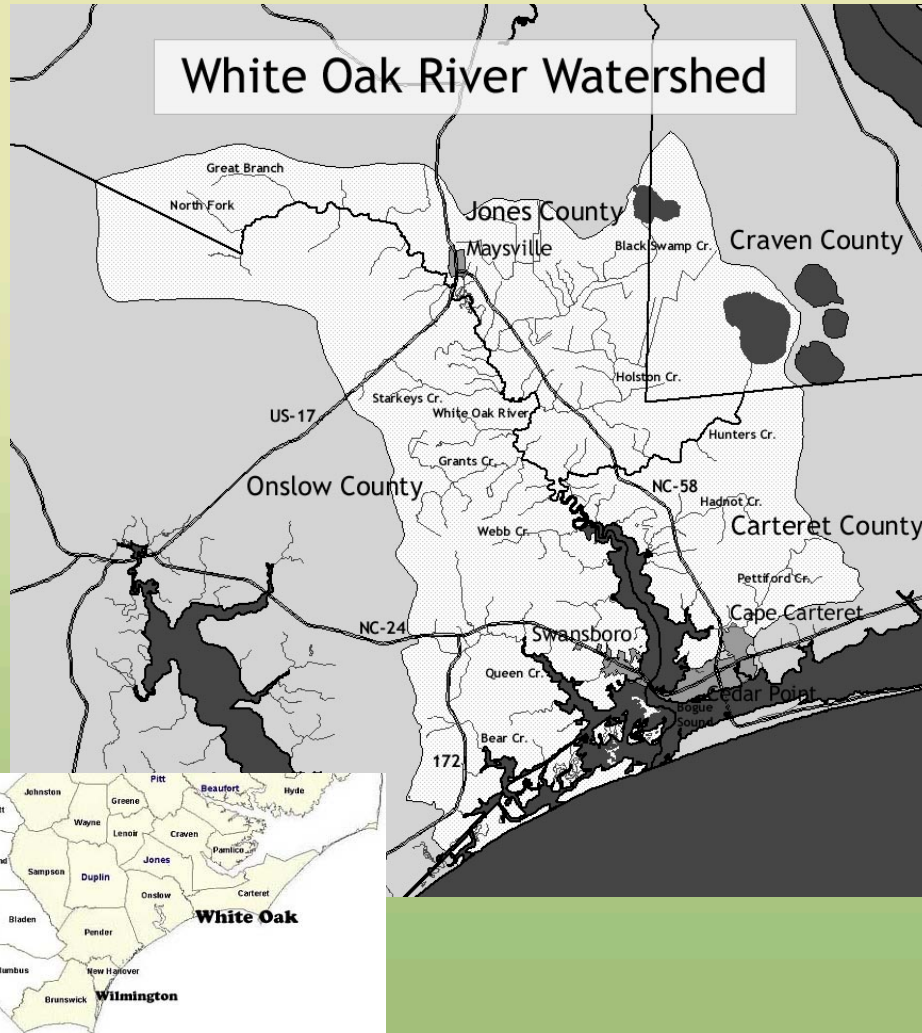
- People care about places
- Problems/scale not too big
- Potential to enlist community help



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White Oak Snapshot



- A relatively unblemished jewel on the coast
- 48 miles long, drains 1,200 square miles and 12,000 acres of estuaries in Jones, Onslow and Carteret counties
- Home to five distinct ecosystems: bottomland hardwood forest, red cedar forest, brackish marsh, tidal cypress swamp and tidal freshwater marsh



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Water Quality Problems

The White Oak has been discovered:

- Population increased 50%
- 82% increase in urban land use

Grim arithmetic:

- 42% of the river's shellfish waters closed to shellfishing due to bacteria contamination
- Other areas close temporarily after rain



State monitoring indicates increased runoff from urbanization is probably delivering more bacteria to adjacent shellfish waters.



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Water Quality Problems

Multiple Causes:

- Intensity of land uses
- Unsuitable land overdeveloped
- Oyster reefs eroded and depleted

Altered states:

- Fishery habitats lost
- Shellfish beds polluted
- Shorelines eroded
- Two-thirds of shellfish beds are “impaired.”



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Increase Understanding

Engage the community to figure out what's wrong:

- Citizen water quality monitoring basis for TMDL
- Local government and stakeholder meetings to identify problems to be resolved
- Include schools in hands on activities
- Invite media coverage on a consistent basis
- Survey shoreline landowners to determine who will contribute to protection measures



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Devise Solutions

Develop workable restoration strategies to pursue:

- TMDL
- Watershed restoration plan
- Low impact development
- Retrofits of existing development
- Riparian shoreline buffers
- Oyster reef restoration
- Living shorelines
- National Forest Plan
- Forest stewardship plans (USDA) for private lands
- Long leaf pine restoration on State Gamelands



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Recruit Partners

Enlist the support of multiple partners to carry out solutions:

- Residents
- Visitors
- Landowners
- Government agencies
- Military
- Highway department
- Industry
- Fishermen
- Schools
- Universities
- Media
- Developers and their consultants



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Raise Capital

Work diverse contacts and secure needed financial resources:

- Section 319 Clean Water Act
- EPA watershed grants
- Fish and Wildlife Partner Grants
- NAWCA
- CWMTF
- CCAP
- USDA farm bill programs
- NOAA Community Restoration
- Private contributions
- Military
- USDA
- Park and recreation funds
- Volunteers



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Tools

Awareness

Action

Persistence

Advocacy

Problems



Education



Solutions



**Preservation
and
Restoration**



Results



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