North Carolina Nutrient TMDLs: Integrating State and Federal Programs

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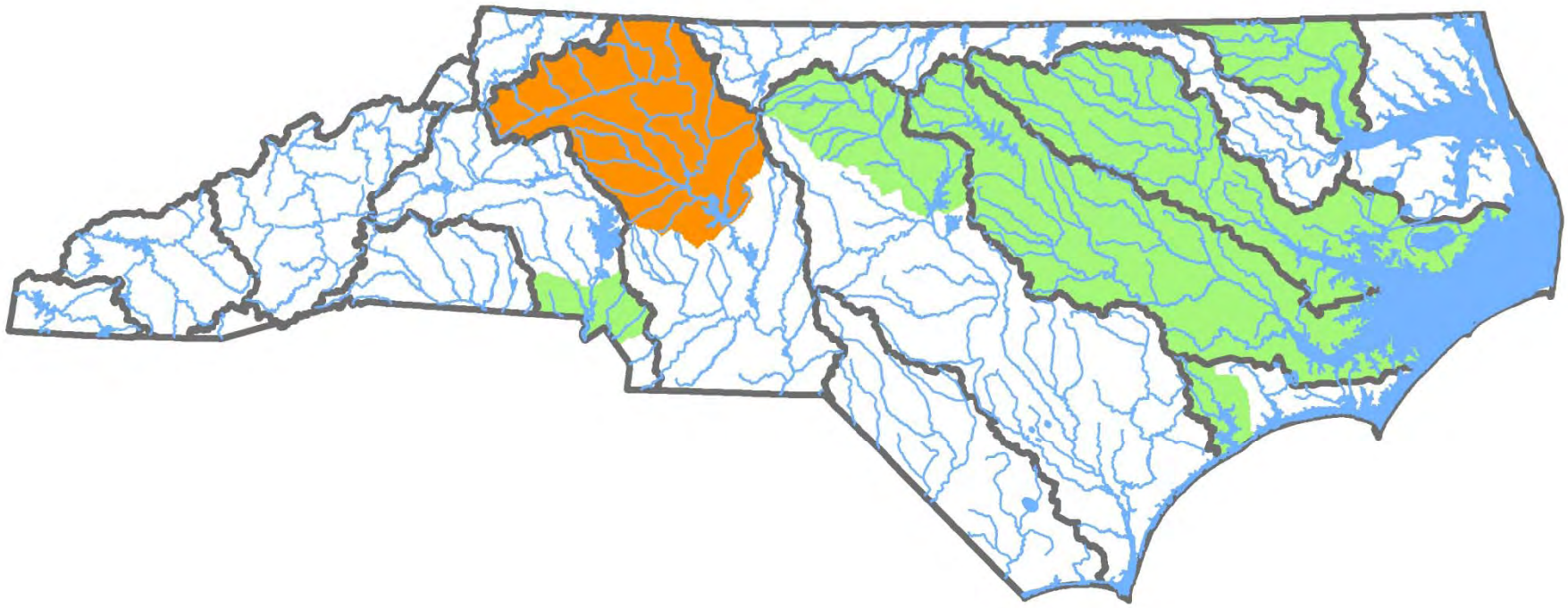
EPA Nutrient TMDL Workshop
February 16, 2011

Outline

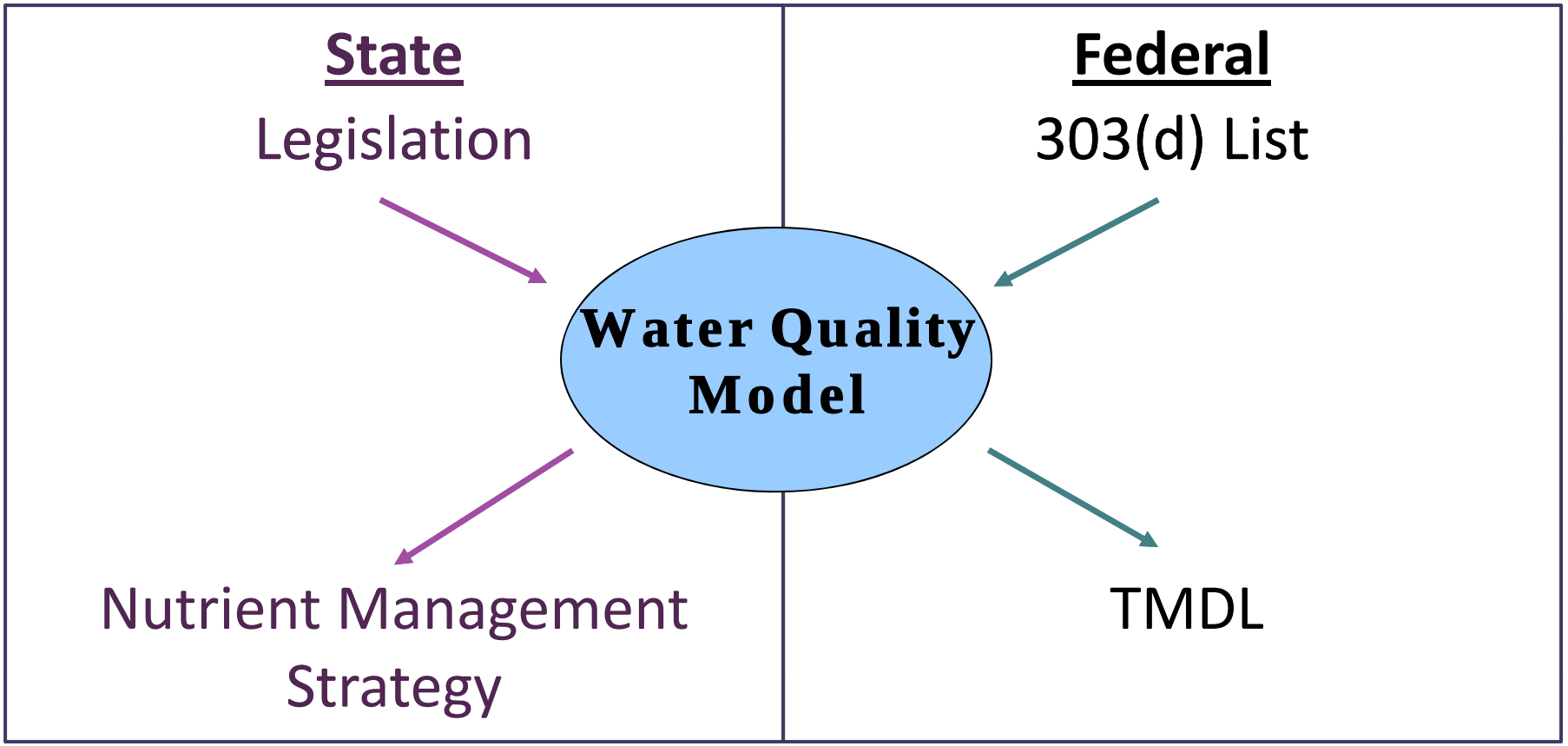
- Nutrient Management History
- State/Federal Processes
- NC Water Quality Standard
- Nutrient Management Strategies
- Example: Falls Lake
- Future Efforts

Nutrient Management History



- Chowan River 1981
- Detergent P ban 1988
- Tar Pamlico 1991
- Lake Wylie 1996
- Neuse River 1997
- Jordan Lake 2009
- Falls Lake 2010
- High Rock Lake (soon)

Processes for NC Waters Impaired by Nutrients



NC Water Quality Standard

- Chlorophyll-*a*
  - Adopted 1979
    (15A NCAC 02B .0211 (3) (a))
    (15A NCAC 02B .0220 (3) (a))
  - Applies to all waters/all places
  - 40 µg/L for all waters except trout waters (15 µg/L)

Nutrient Management Strategy

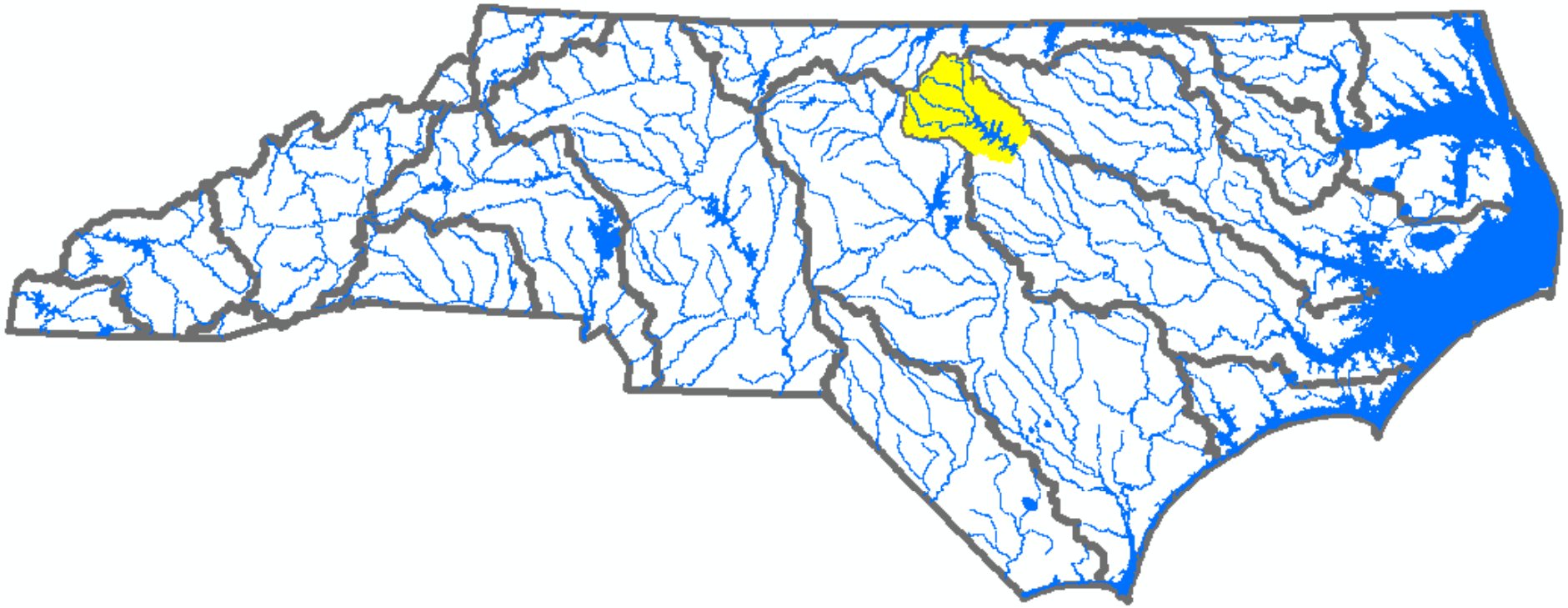
- "Implementation Plan"
- Regulatory rulemaking
- Requires:
  - Calibrated nutrient response model
  - Specific reductions for ALL sources
  - Timeline for implementation
  - Cost analysis
  - Stakeholder involvement
  - Progress evaluation reports

Trends in Nutrient Strategies

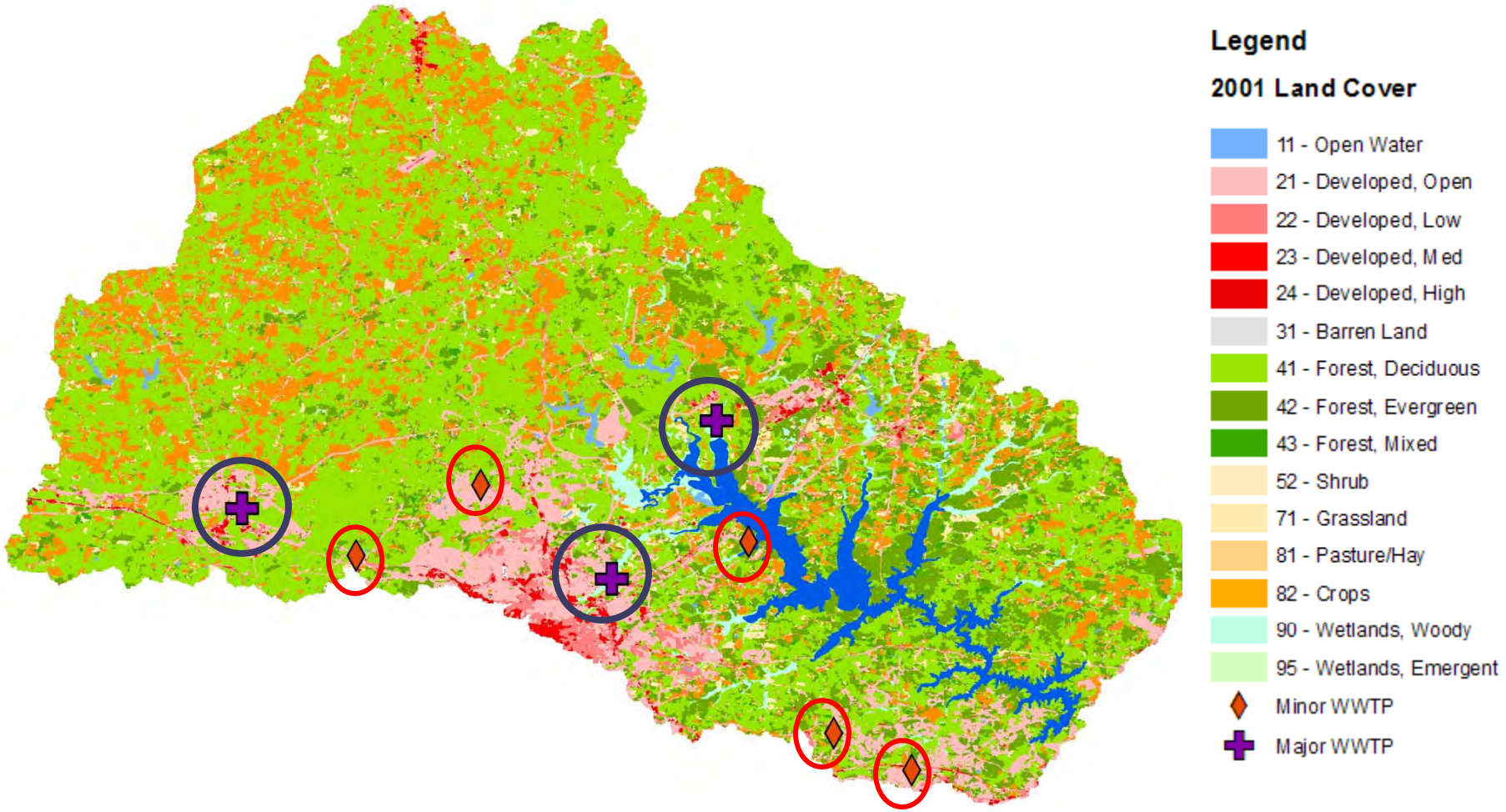
Earlier		Later
Mostly point sources	⇨	All sources
Coastal	⇨	Inland
Basins	⇨	Subbasins
Technology-based	⇨	Water quality-based

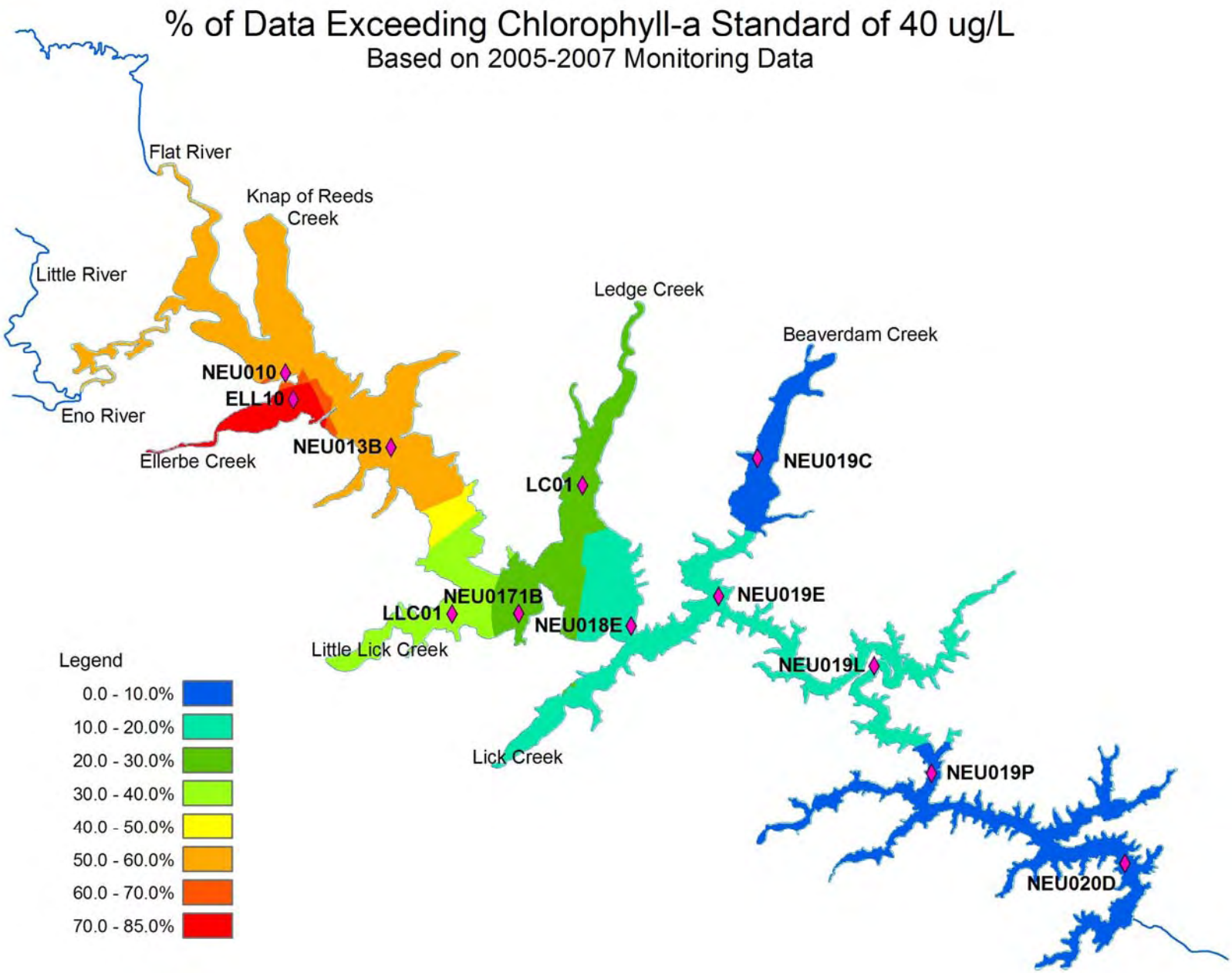
⇨ Greater stakeholder collaboration

Example: Falls Lake

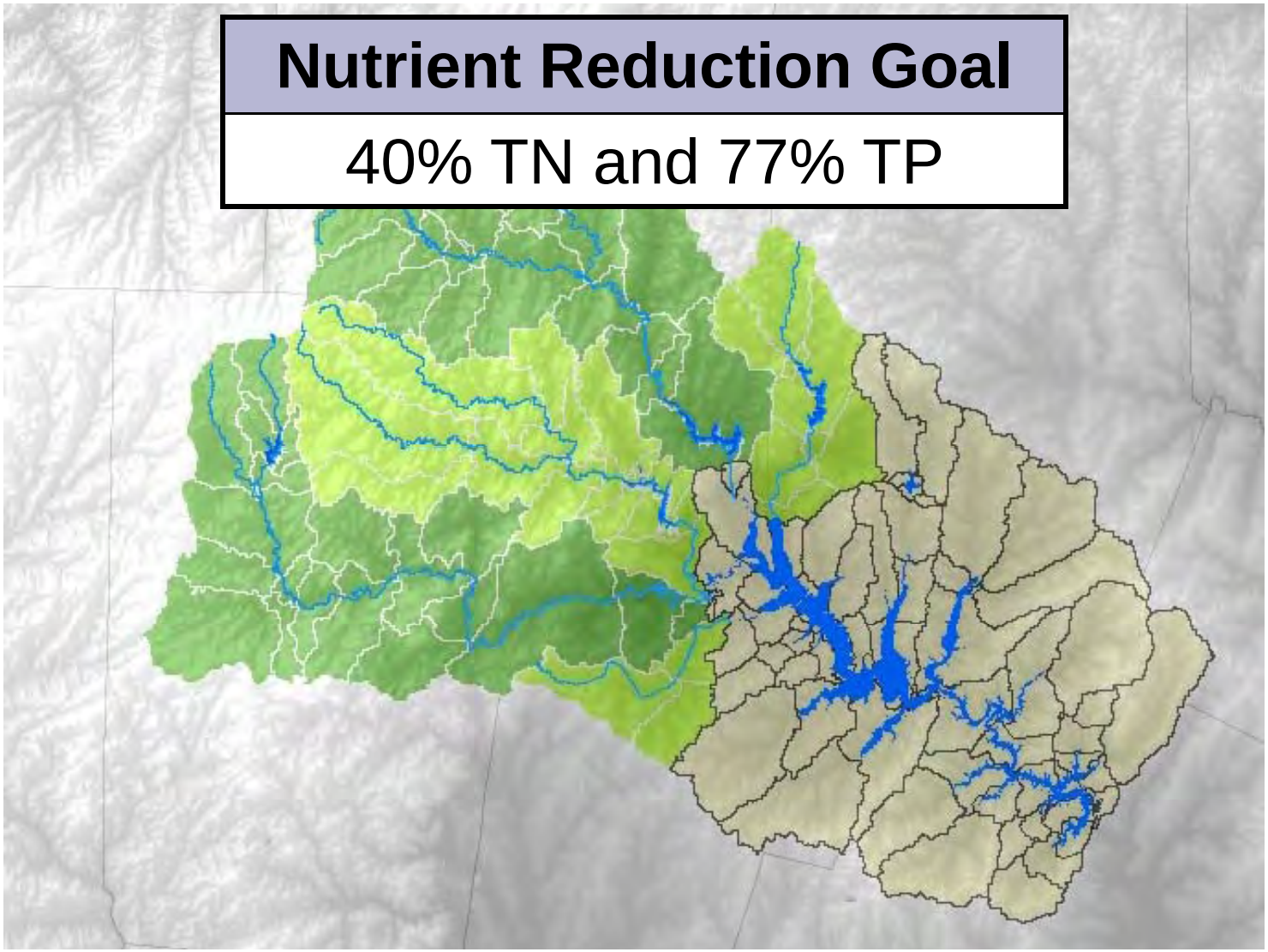


Falls Lake Watershed




% of Data Exceeding Chlorophyll-a Standard of 40 ug/L
Based on 2005-2007 Monitoring Data
Flat River
Knap of Reeds Creek
Little River
Eno River
Ellerbe Creek
Ledge Creek
Beaverdam Creek
NEU010
ELL10
NEU013B
LC01
NEU019C
NEU0171B
LLC01
NEU018E
NEU019E
Little Lick Creek
NEU019L
Lick Creek
NEU019P
NEU020D
Legend
0.0 - 10.0%
10.0 - 20.0%
20.0 - 30.0%
30.0 - 40.0%
40.0 - 50.0%
50.0 - 60.0%
60.0 - 70.0%
70.0 - 85.0%

Example: Falls Lake



Components of Falls Lake Nutrient Management Strategy

- Goals
- Definitions
- New Development
- Existing Development
- Wastewater Discharge
- Agriculture
- State & Federal Entity
- Options for Offsetting Nutrient Loads

Components of Falls Lake Nutrient Management Strategy

- Fiscal analysis
  - Estimated cost: **< $1.5B**
  - Estimated benefit: **> $603M**
- Effective January 2011
- Fully implemented by 2036
- TMDL?

http://portal.ncdenr.org/web/wq/ps/nps/fallslake

Future Efforts

- Refine accounting tools
- Identify gaps in source identification
- Update chlorophyll-*a* standard
- Prevent future impairments

A New Proposal: Threshold Chlorophyll-*a* Levels

- Are **not** water quality standards
- Exceedances ≠ water quality impairment
- Exceedances = implementation of proactive nutrient control measures
- **Prevent** impairment


Questions?
www.ncwaterquality.org