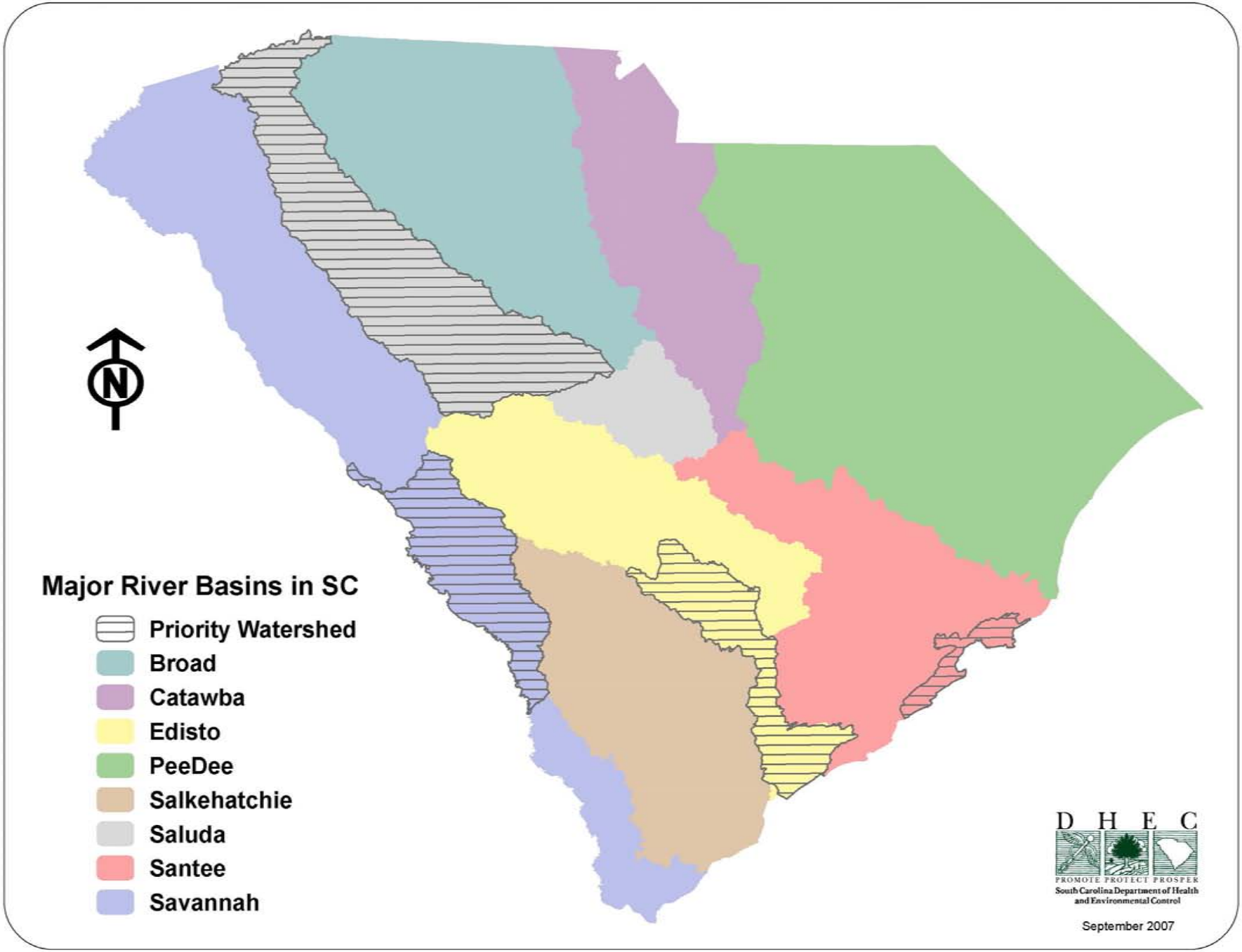
Status of the Savannah River Basin in South Carolina

Mihir Mehta, P.E.,

Bureau of Water - SCDHEC


N
Major River Basins in SC
Priority Watershed
Broad
Catawba
Edisto
PeeDee
Salkehatchie
Saluda
Santee
Savannah
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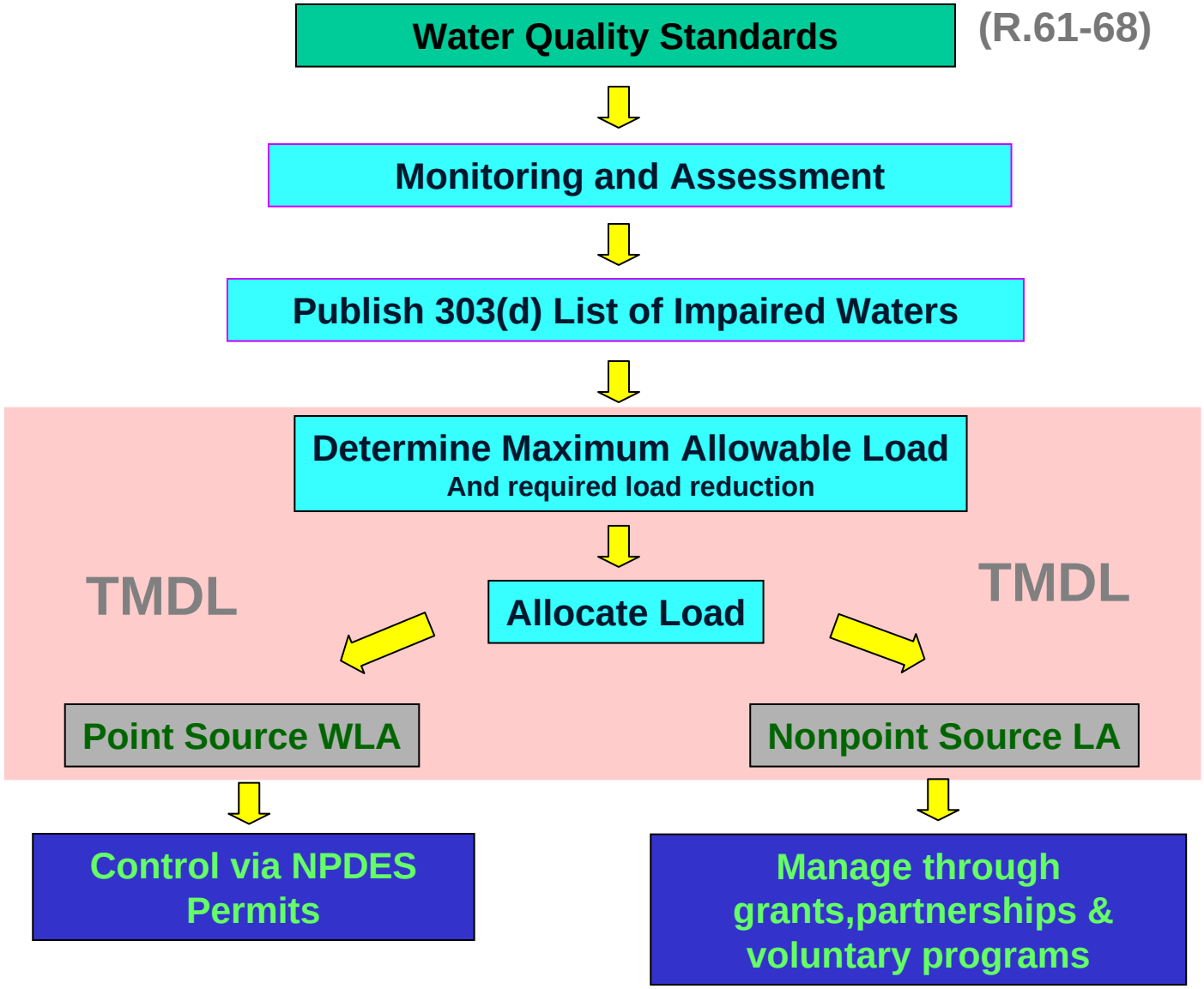
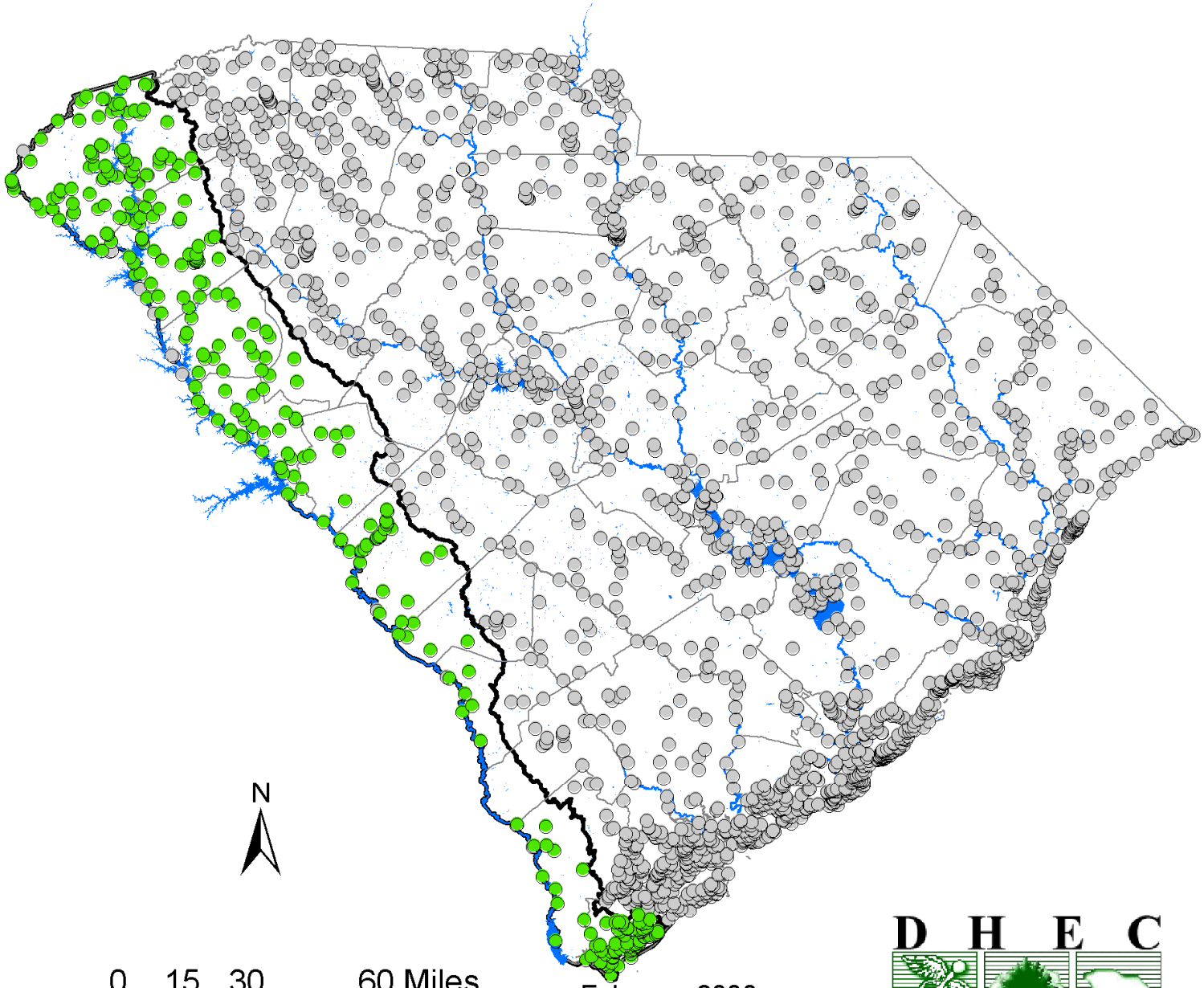
South Carolina Department of Health and Environmental Control
September 2007


Water Quality Standards
(R.61-68)
Monitoring and Assessment
Publish 303(d) List of Impaired Waters
Determine Maximum Allowable Load
And required load reduction
TMDL
Allocate Load
TMDL
Point Source WLA
Nonpoint Source LA
Control via NPDES Permits
Manage through grants,partnerships & voluntary programs

SCDHEC Savannah River Basin Monitoring Locations



February 2008

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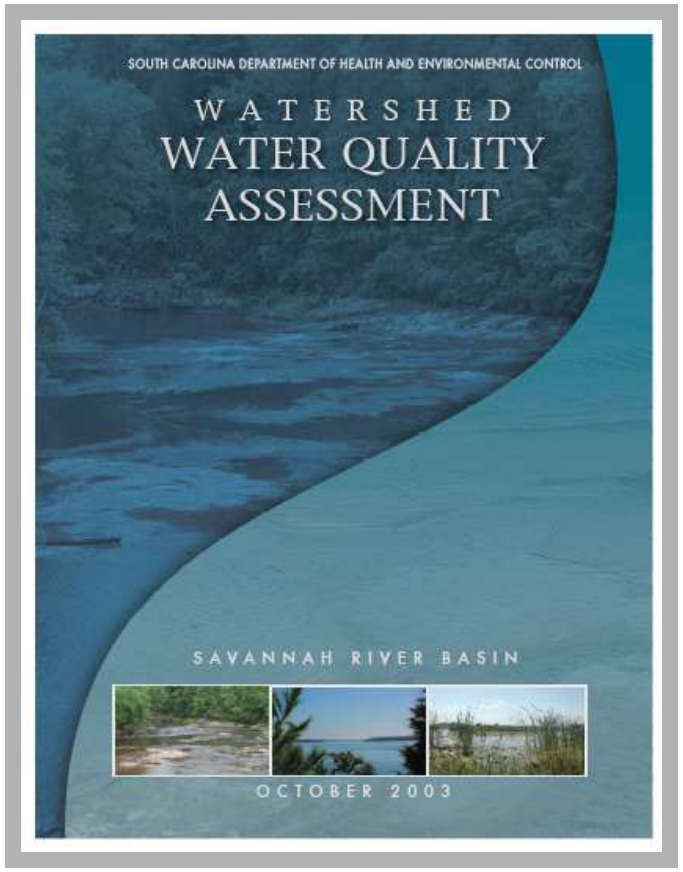
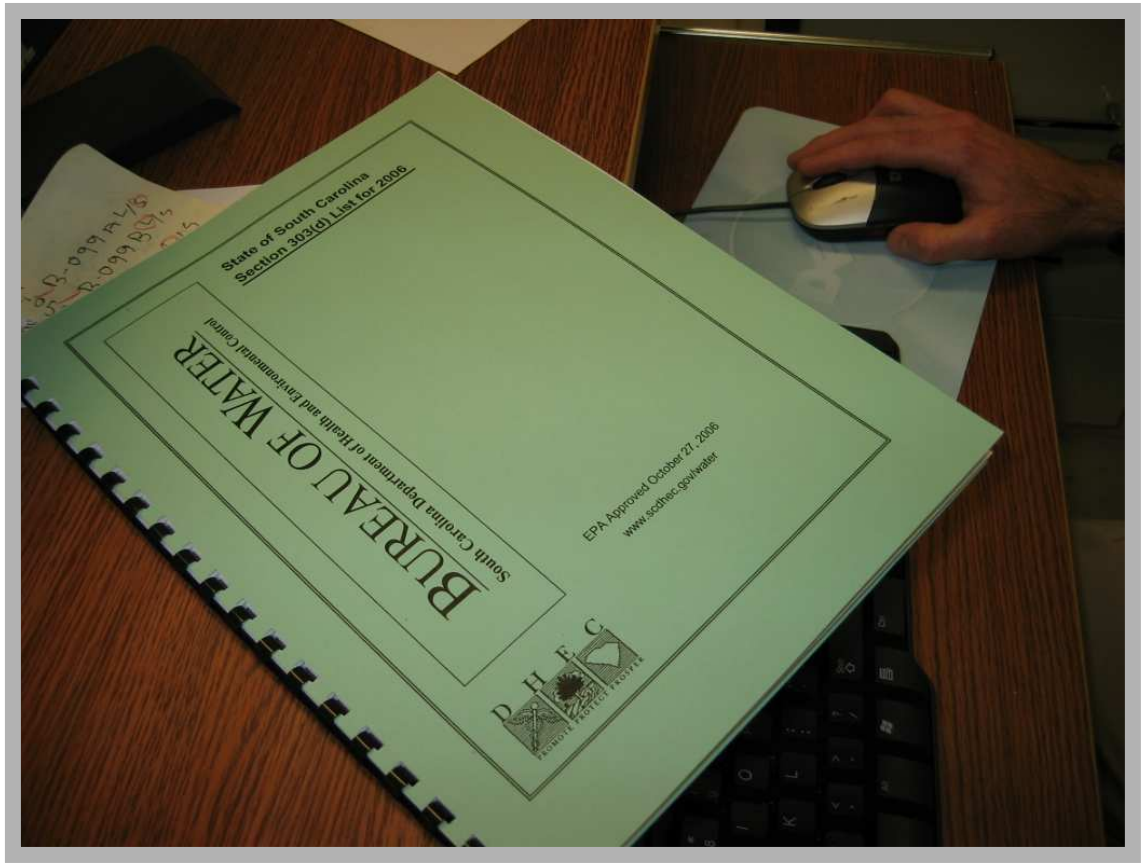
For Comparison…

- In 2006, SC monitored 650 sites for fecal coliform bacteria
  - NC monitored 365 sites
  - GA monitored 130 sites

- SC is a smaller state
- SC considers ALL waterbodies to be "primary contact waters"
- SC uses a more rigorous fecal coliform standard

Assessing the Data

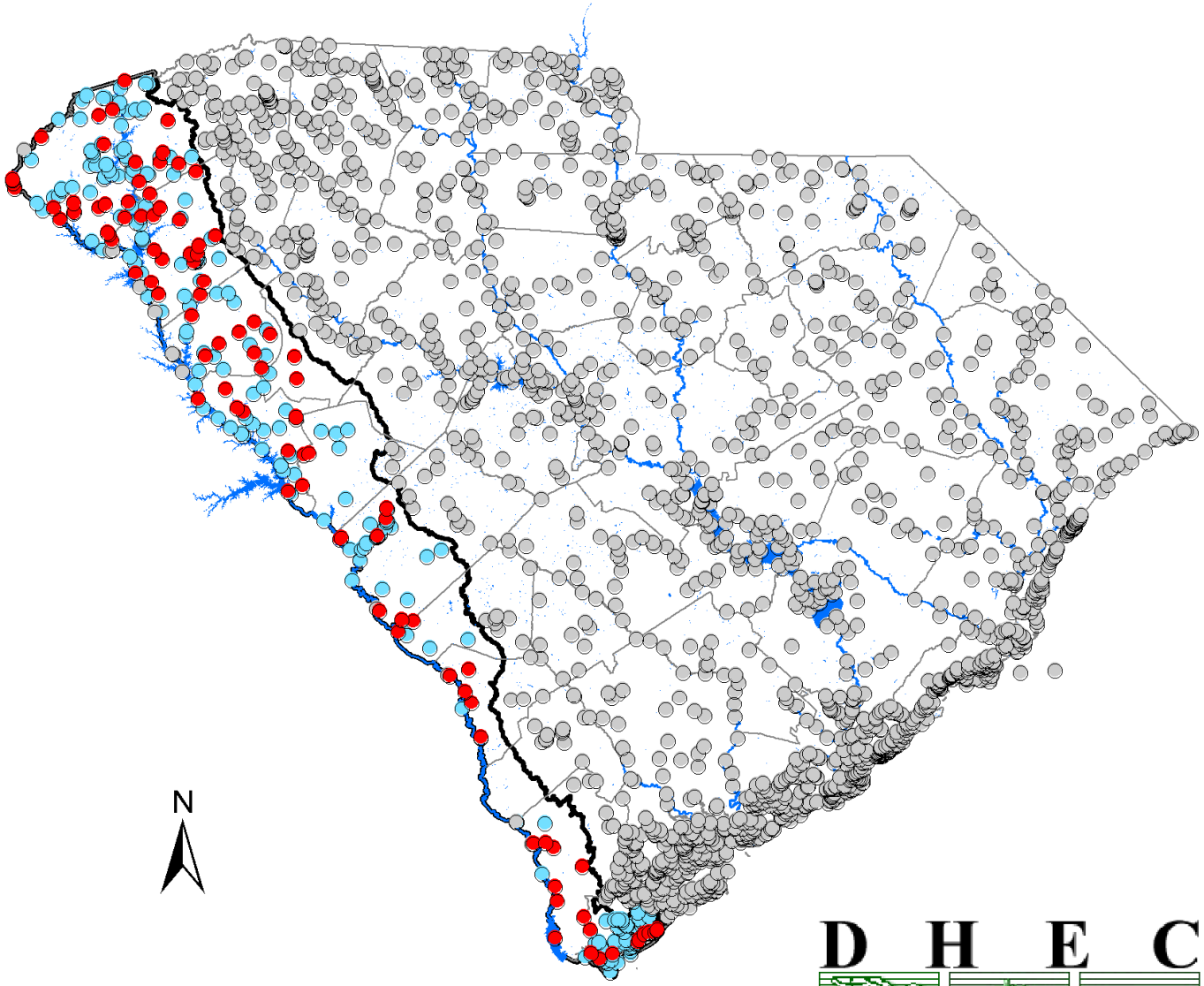




Savannah River Basin - 303(d) listing

	2004	2006	2008
Sites monitored	220	242	271
Sites with at least one impairment	99	89	104
Biological	18	21	22
Mercury (fish tissue)	20	18	22
Fecal Coliform (ambient)	44	12	30
Fecal Coliform (shellfish)	0	8	8
pH	13	8	10
Dissolved Oxygen	7	6	4
Copper	4	7	3
Nickel	0	1	1
Zinc	1	5	5
PCB	5	4	5
Phosphorus	3	3	1
Turbidity	1	4	5
Impairments total	116	97	116

Savannah River Basin Impaired Locations
Based on 2008 Draft 303(d) List



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Total Maximum Daily Load

- Maximum amount of **a pollutant** that a waterbody can receive from all sources, and still meet water quality standards

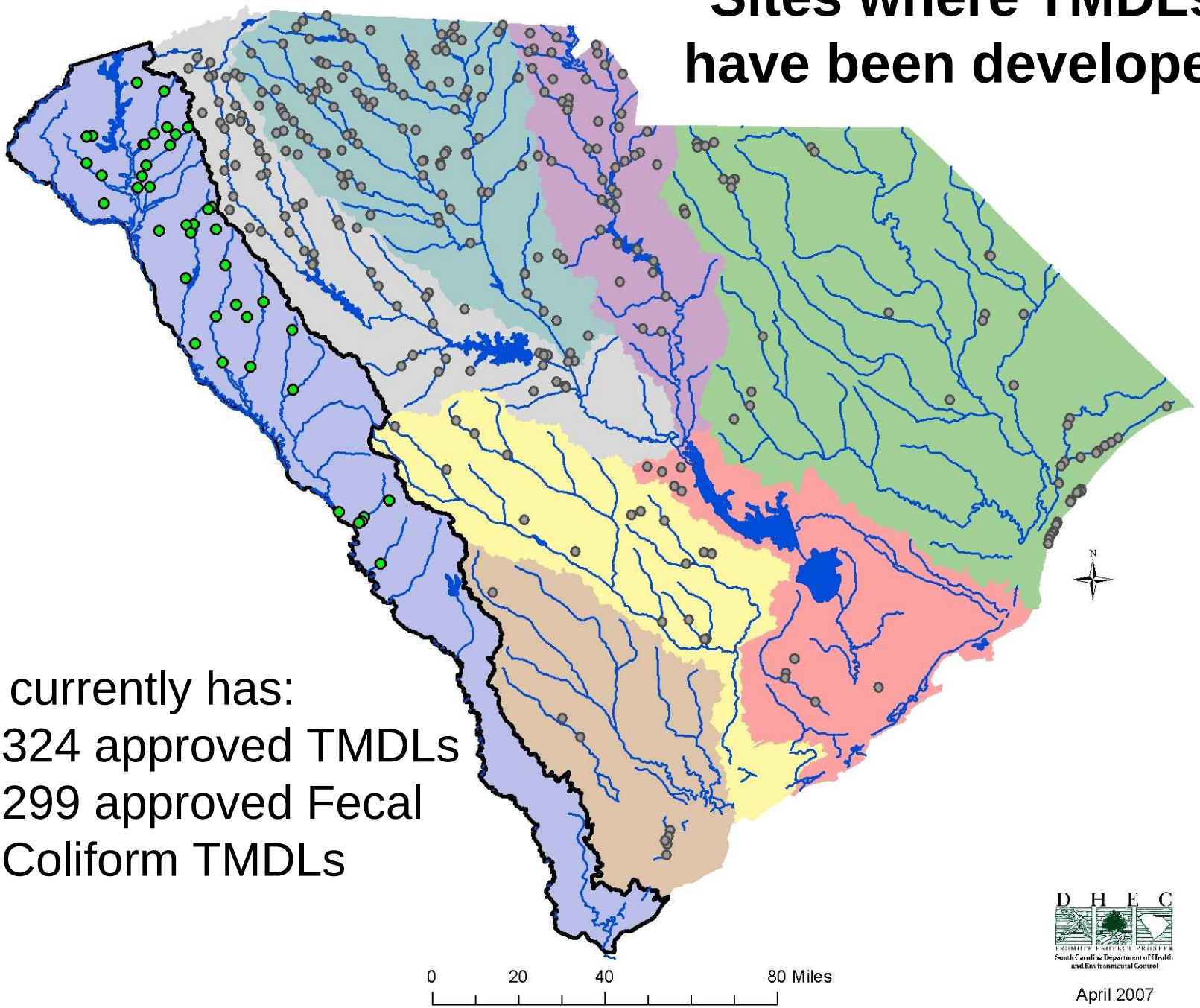
- Maximum allowable amounts of point and nonpoint source contributions, plus a margin of safety

- Formula:

  TMDL = WLA + LA + MOS

  (WLA = Point, LA = Nonpoint, MOS = Margin of Safety)

Sites where TMDLs have been developed



SC currently has:

- 324 approved TMDLs
- 299 approved Fecal Coliform TMDLs

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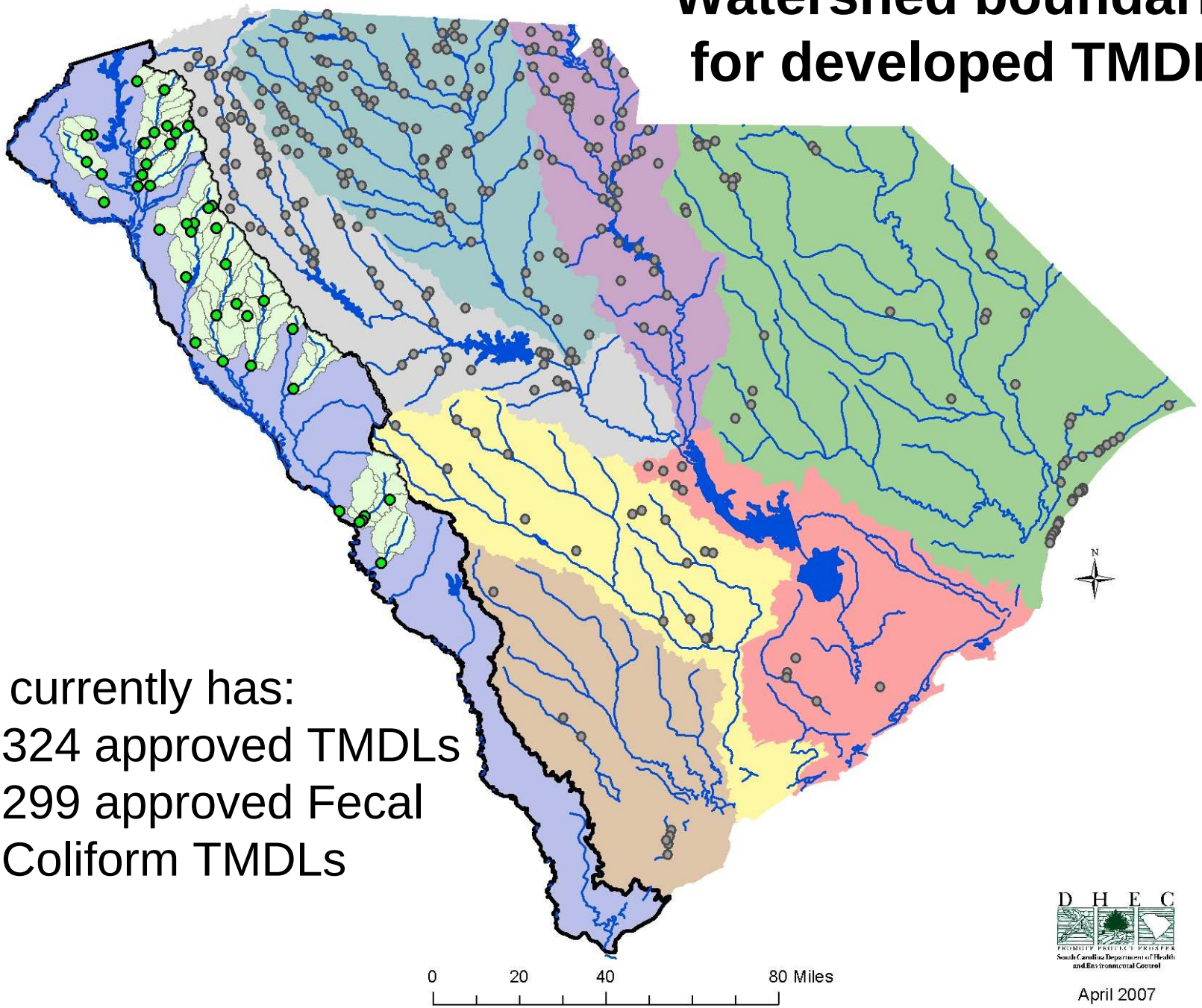
South Carolina Department of Health and Environmental Control

April 2007

Watershed boundaries for developed TMDLs



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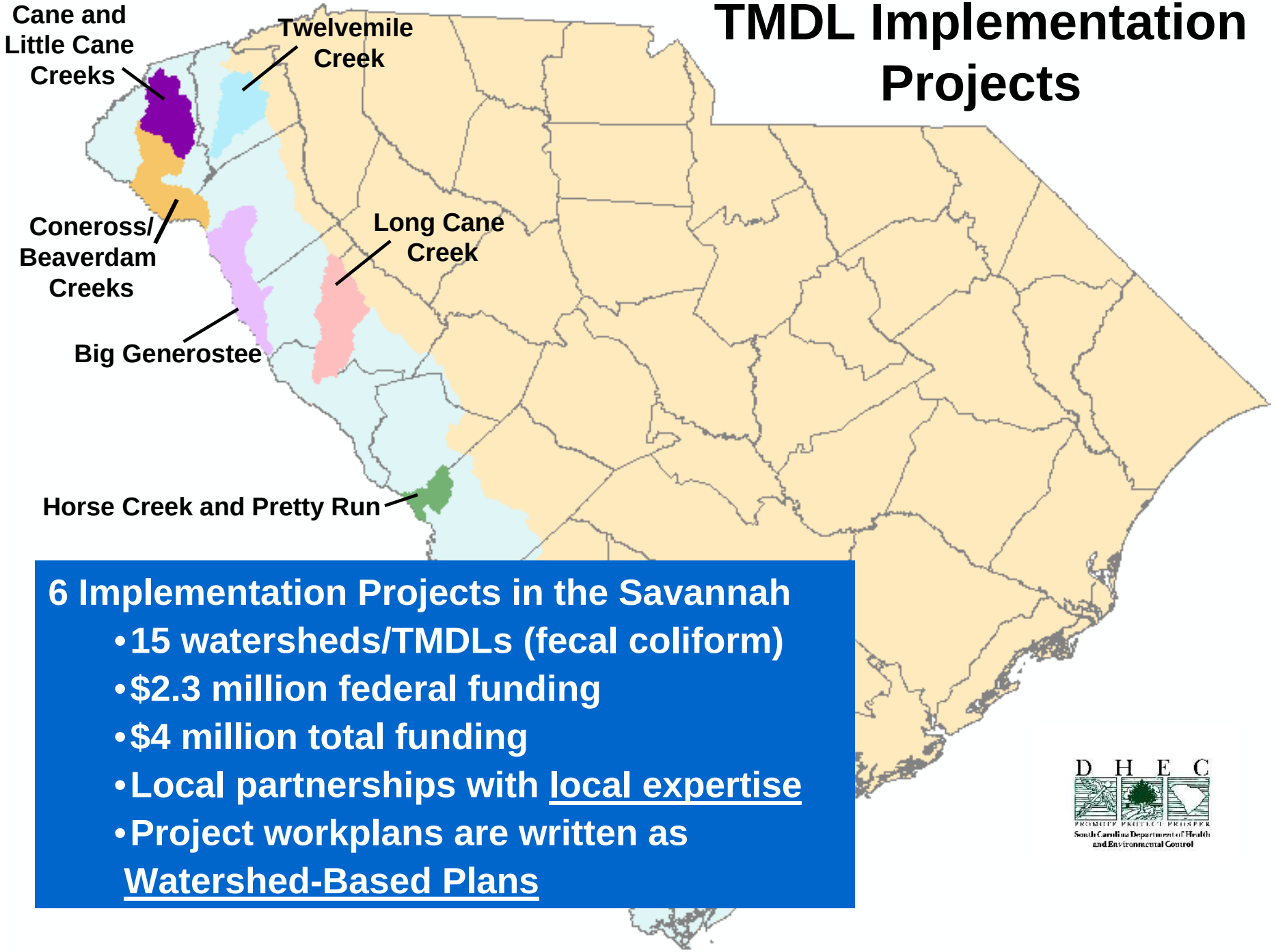
TMDL Implementation Projects



6 Implementation Projects in the Savannah

- **15 watersheds/TMDLs (fecal coliform)**
- **$2.3 million federal funding**
- **$4 million total funding**
- **Local partnerships with <u>local expertise</u>**
- **Project workplans are written as <u>Watershed-Based Plans</u>**

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Local Knowledge

Sample Partners

- Natural Resource Conservation Service
- S.C. Forestry Commission
- Conservation Districts
- Department of Natural Resources
- State and Private Universities
- Nonprofit Cooperators
- Clemson University Extension
- South Carolina Sea Grant Consortium
- Local Municipalities
- Regional Councils of Governments
- Community Associations

Coneross and Beaverdam Creeks

- First “Success” Story
- 3 year project in rural NW SC
- Implemented three fecal coliform TMDLs
- Ag. community and homeowners participated

South Carolina: Coneross & Beaverdam Creeks

Homeowners and Agricultural Community Reduce Bacteria Levels in Oconee County Watersheds

Waterbody | Problem | Project Highlights | Results | Partners & Funding

Waterbody Improved

Livestock operations and failing septic systems caused excessive fecal coliform levels in two rural South Carolina creeks. In 1998 the state placed three sites (i.e., waterbody segments) along Coneross and Beaverdam Creeks on its 303(d) list for violating bacterial indicator water quality standards. The three watersheds represented by these sites did not support recreational uses because of the bacterial impairment. The South Carolina Department of Health and Environmental Control (SCDHEC) developed total maximum daily loads (TMDLs) for fecal coliform for Beaverdam Creek and two sites within Coneross Creek. Public and private partners met these TMDLs by implementing several best management practices (BMPs) designed, in part, to help the creeks meet state water quality standards for fecal coliform. At the close of the project in December 2005, all three sites were meeting South Carolina's water quality standards for fecal coliform.

Problem

Coneross and Beaverdam Creeks flow though Oconee County in the northwest corner of South Carolina. Water quality monitoring data within the two rural watersheds showed that three sites consistently exceeded state water quality standards for fecal coliform. As a result, South Carolina placed two sites on Coneross Creek and one site on Beaverdam Creek on its 303(d) list for fecal coliform bacteria violations. These watersheds encompass 47,016 acres in Coneross Creek and 9,099 acres in Beaverdam Creek. Staff at SCDHEC attributed the violations to failing septic systems and runoff from animal management sites. South Carolina removed the Beaverdam Creek site from the 303(d) list in 2000 and the Coneross Creek site in 2002 because a TMDL had been developed and approved for each station. However, water quality standards were not met at any of the three sites until 2005.

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Project Highlights

In 2002 South Carolina initiated a 3-year project to develop and implement three fecal coliform TMDLs for the creeks. To effectively meet the TMDLs, project partners developed a watershed-based plan that targeted the agricultural community and homeowners with septic systems needing repair or replacement.

The plan included an extensive community education component. Through various outreach efforts, project partners improved homeowner awareness of the importance of proper septic system maintenance. Outreach to the agricultural community included information about various BMPs to improve water quality.

Contact:

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This alternative watering source on the Hendrix Farm keeps cattle out of nearby creeks and ponds.

TMDL Implementation

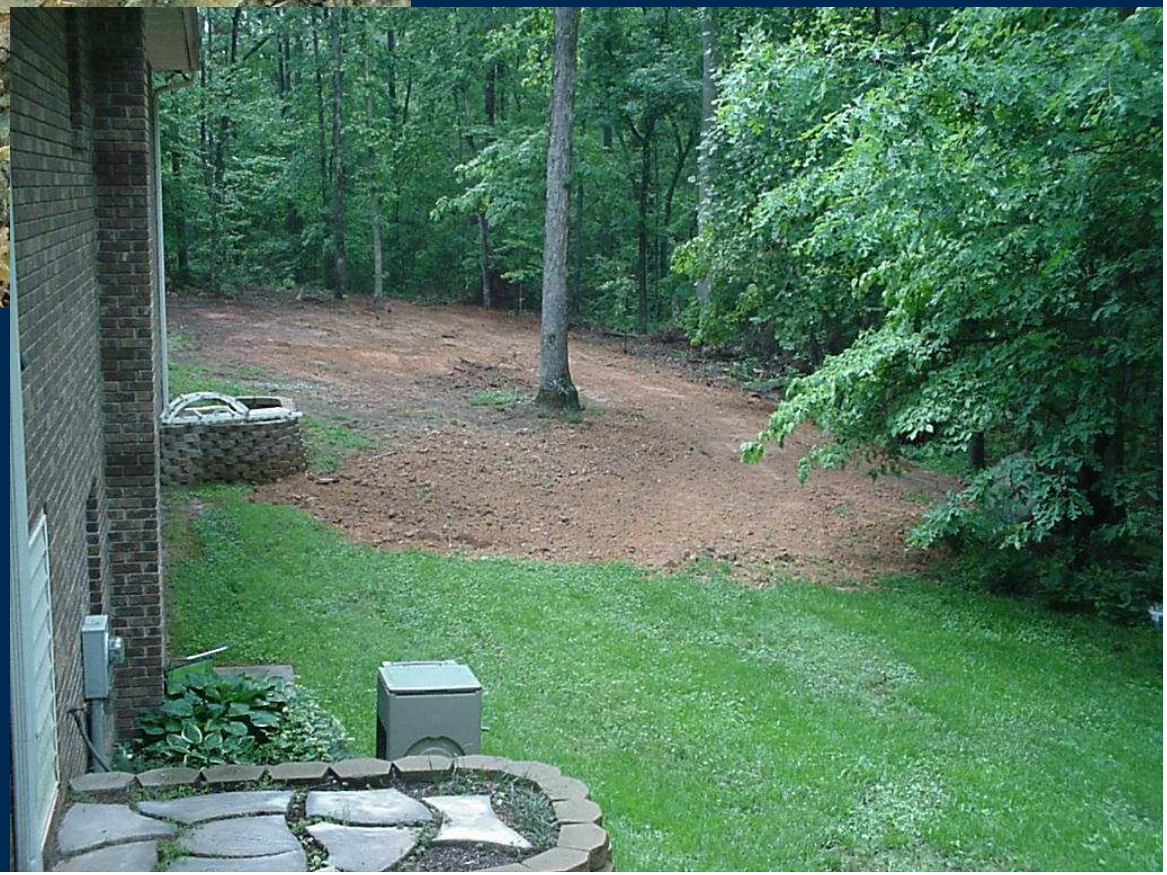
- Local Projects
- Identify Sources
- Best Management Practices (BMPs)
- Agricultural Community
- Homeowners
- Outreach/ Education/Action

Thermal Imaging

Illicit Discharge Identified

Improved
Site

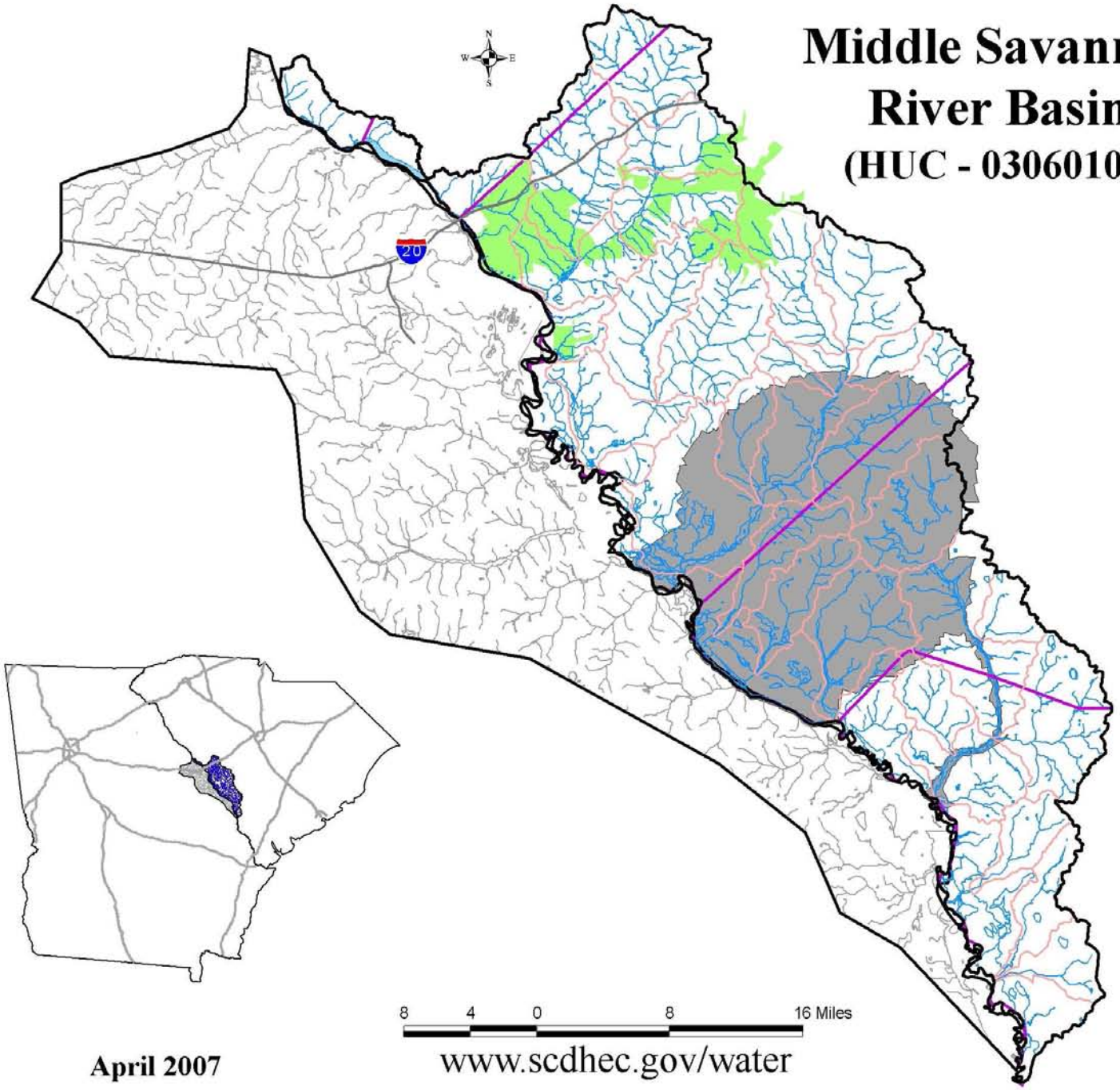
Septic Tanks



Waste Management

Alternative Water Source

Middle Savannah River Basin
(HUC - 03060106)



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www.scdhec.gov/water

Priority Watershed

- § 319 – Horse Creek & Pretty Run
- Partners
  - Clemson Extension, NRCS, Aiken County, City of North Augusta, Rural Development, Master Gardener Assoc.
- Details
  - 2-year project (started early 2007)
  - $200,000 (federal $$), $333,000 total
  - Implements 3 TMDLs

Closing Thoughts

- Continuing to implement TMDLs via §319 grants throughout SC's Savannah watershed
- Recent selection of Long Cane Creek project
  - 2-year length, approx $200,000 federal funds
  - In Abbeville & Greenwood Counties, mostly ag.
- Iterative process

Questions?

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