

Integrating Environmental Health Sciences Research, Teaching, and Service

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- **Research Agenda**
 - **Current Studies**
- **Teaching Philosophy**
 - **Classes**
- **Integration of Research and Teaching**
- **Service**

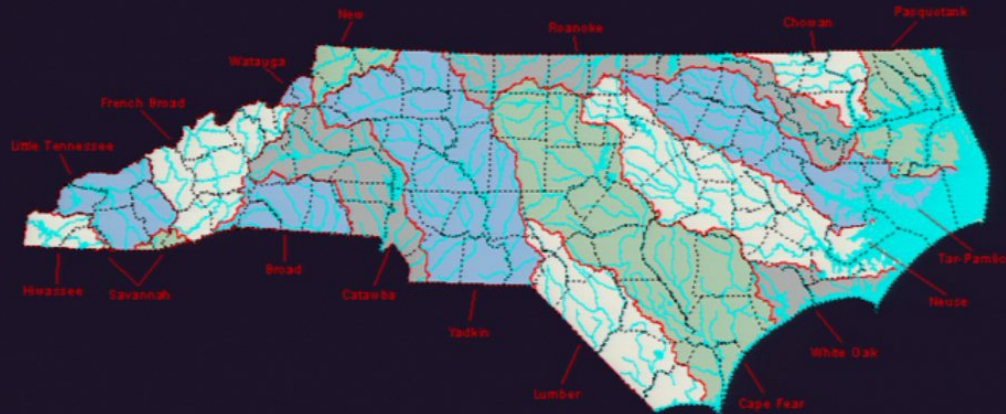
North Carolina Environmental Issues

Eutrophic Conditions and Fish Kills

- Neuse and Tar-Pamlico Rivers
Nutrient Sensitive Waters
Management Strategies
- Lake Jordan, Falls Lake



Neuse River Foundation 2009



NC DENR, 2007

North Carolina Environmental Issues

Shellfish Waters (SA) – Over 1,157 acres of SA waters have closed since 1990.

- High bacteria concentrations

Swimming Advisories – 22 to 24 advisories per year between 2010 and 2012

- High bacteria concentrations





Agriculture



Urban Runoff

Pollution Sources

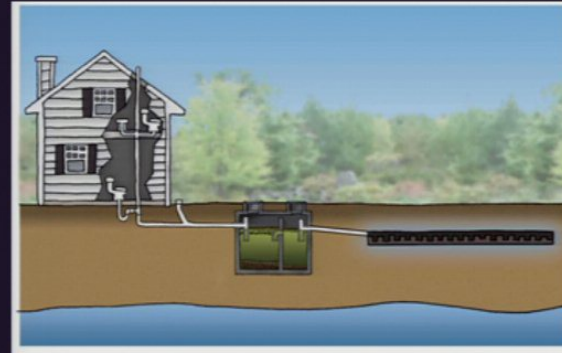


Wastewater



Onsite Wastewater Systems

- On-site Systems
 - 50% of NC population
 - 30,000+ new systems installed in NC each year
 - 60% of coastal NC uses septic systems



Site Characterization and Water Quality Monitoring



- *Soil series
- *System type
- *System age
- *Wastewater strength
- *Separation to water table
- *Number of occupants
- *Distance to surface water

Data Collection and Analysis



Tank, groundwater down-gradient from systems, and in background wells collected and analyzed



Teaching Philosophy

- Use different techniques
 - Traditional lecture with slides
 - Group activities
 - Group projects
 - Student/group presentations
- Evaluation
 - Homework
 - Attendance
 - Report
 - Presentation
 - Exams

Teaching

- **Introduction to Environmental Health**
 - **Water Resources**
 - **Water Pollution**
- **Safe Water**
- **Wastewater Management**
- **Technical Advances in Water Supply and Wastewater Treatment**

Integrating Research and Teaching



Integrating Research and Teaching



Graduate Research



Undergraduate Project



Integrating Research and Teaching



Integrating Research and Teaching

- **NC Water Resources Research Institute Conference**
- **NC Onsite Water Protection Conference**
- **Soil Science Society of NC Conference**
- **State of NC Undergraduate Research and Creativity Conference**
- **National Environmental Health Association Conference**
- **Geologic Society of America Conference**

Service

- Working with state and local officials to put research based knowledge to work



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Questions?