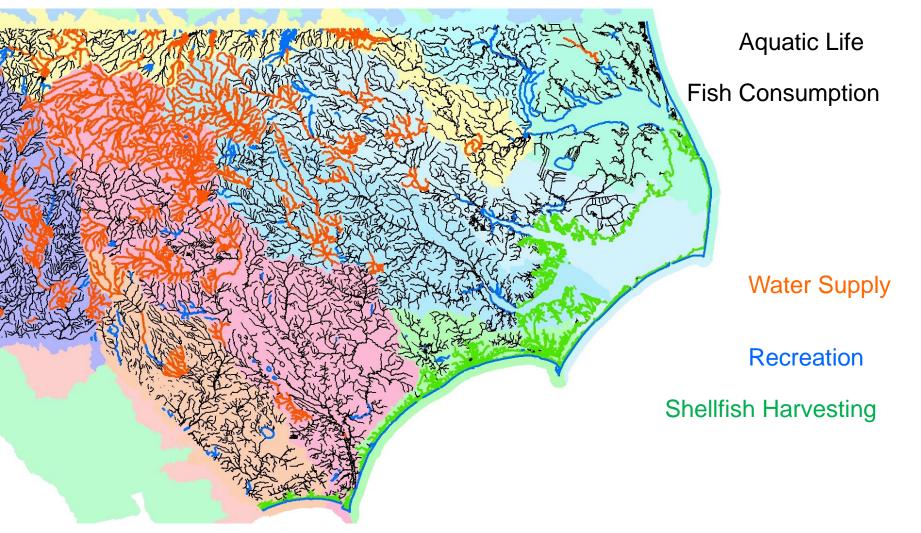




Cam McNutt and Amy Keyworth, DWR Surface Water and Groundwater Data

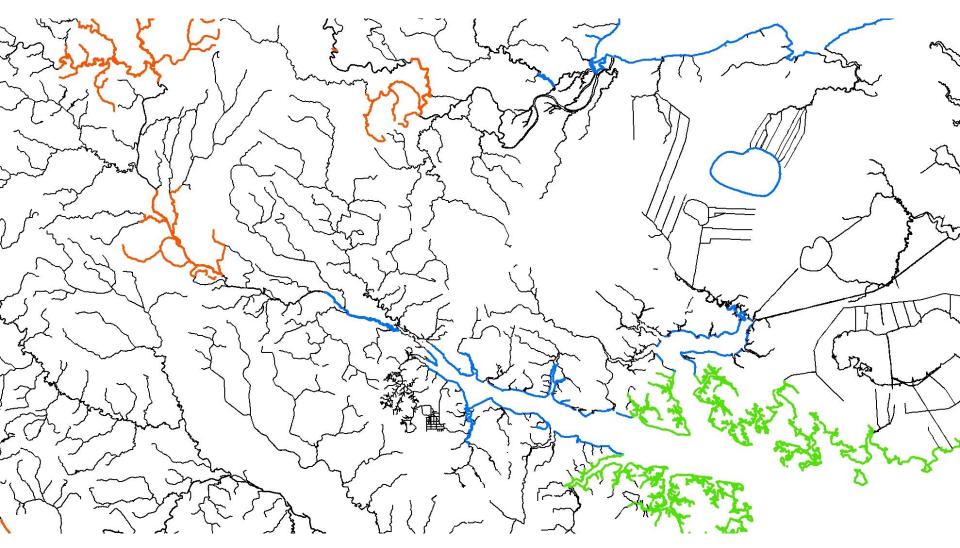


Water Quality Classifications

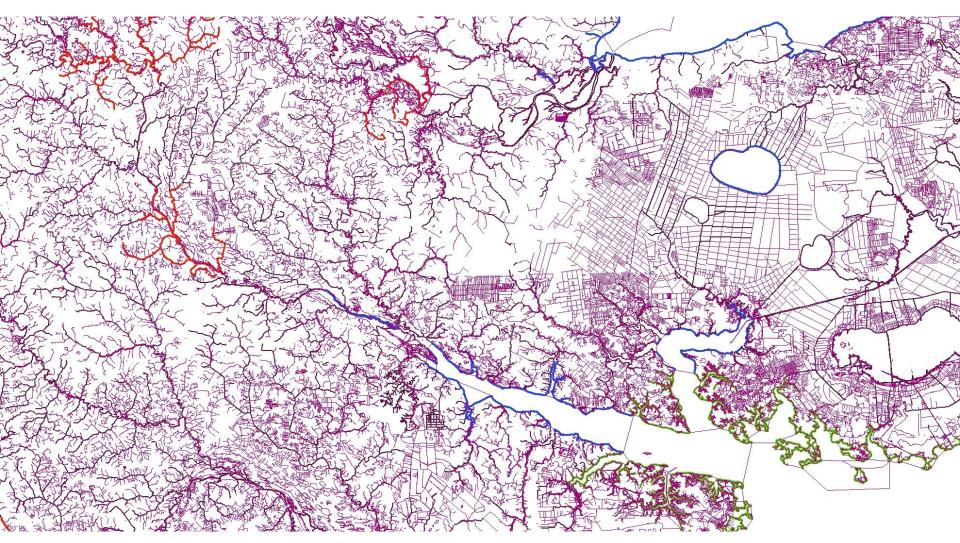


nc dwr classifications

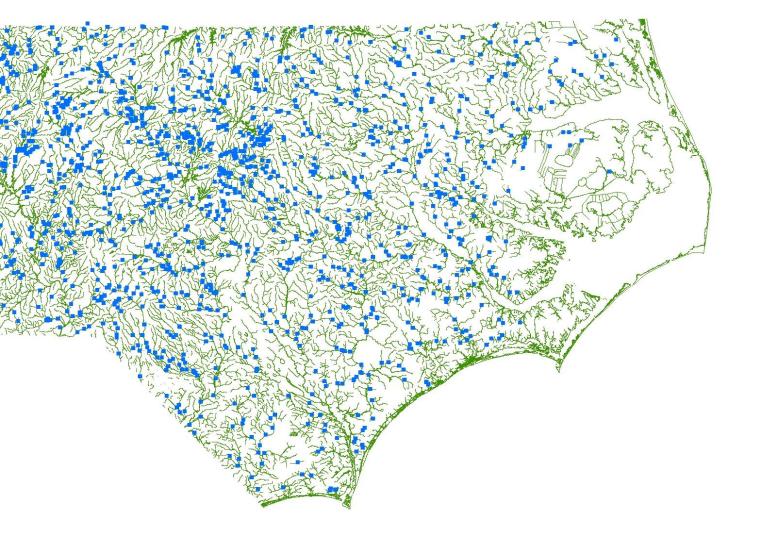
Named Streams 12,000



All Water Mapped Waters

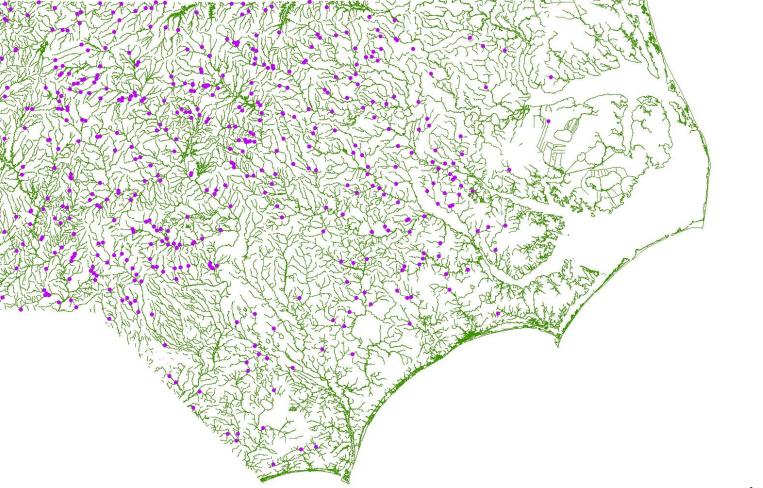


Benthos-Aquatic Life Assessment



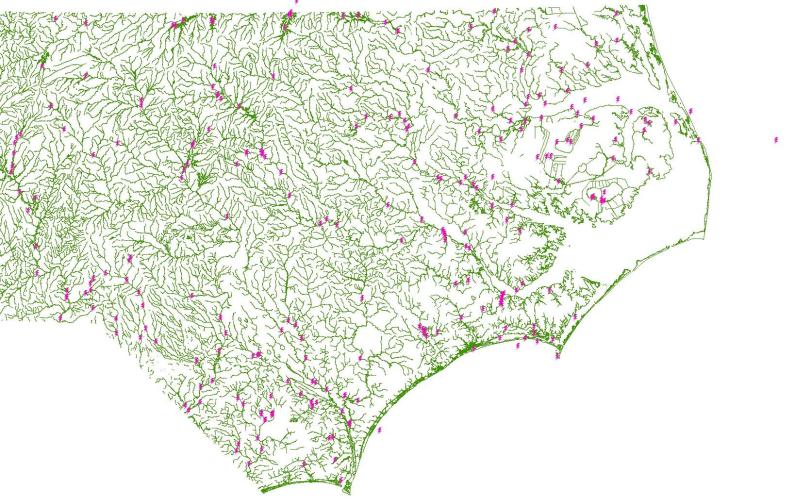
nc benthos

Fish Community-Aquatic Life Assessment



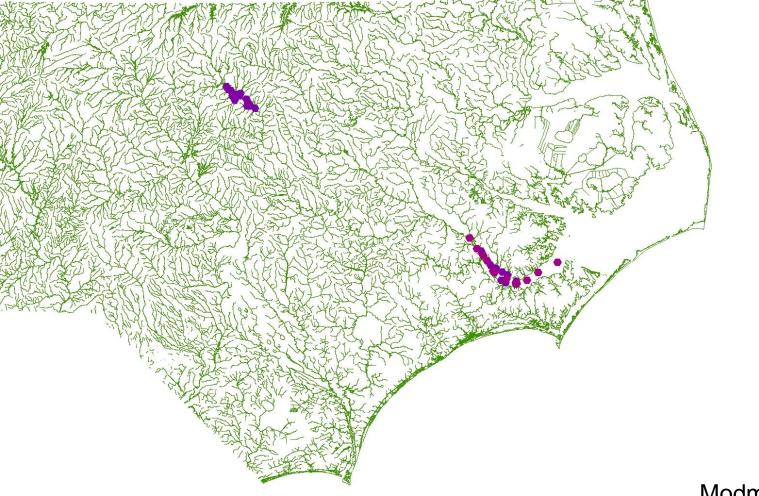
ncdeq fish community

Fish Tissue- Human Health



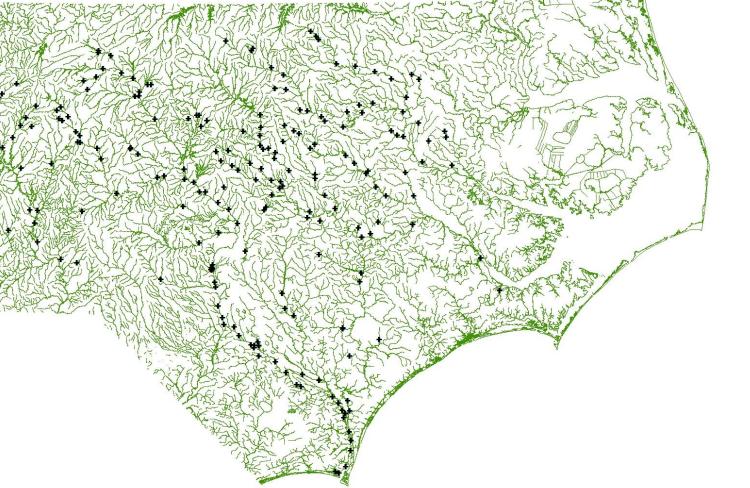
nc fish tissue

University- Multiple Uses



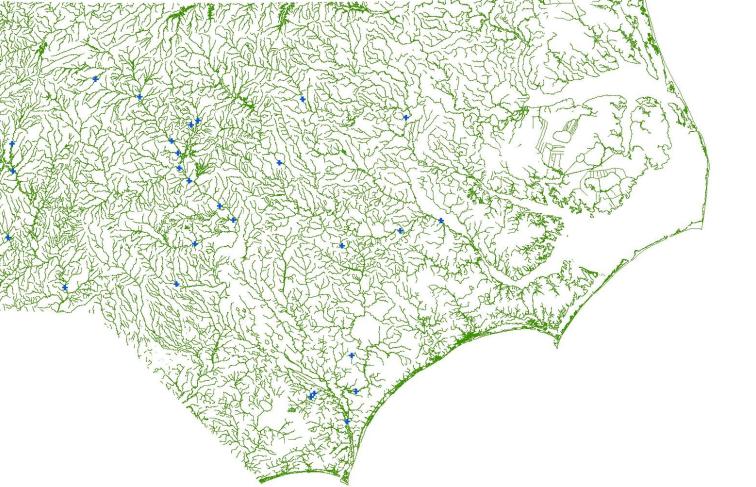
Modmon nc aquatic ecology

Coalition- Multiple Uses



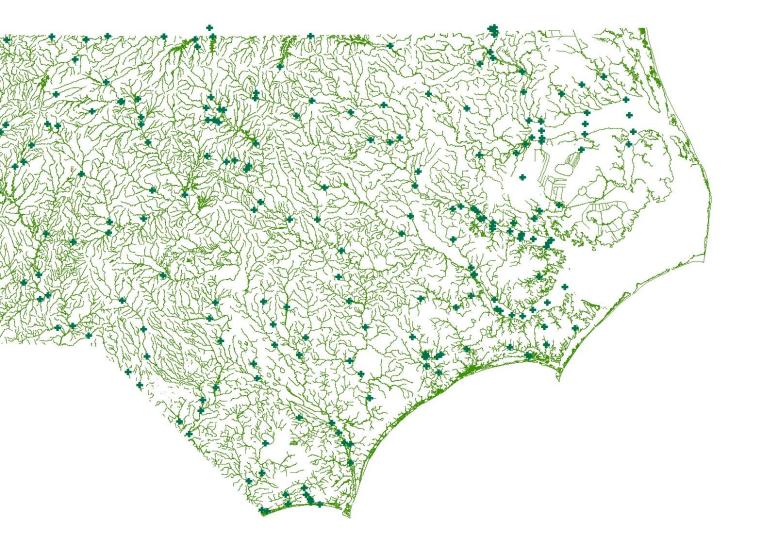
nc coalition monitoring

Multiple Agencies- Multiple Uses



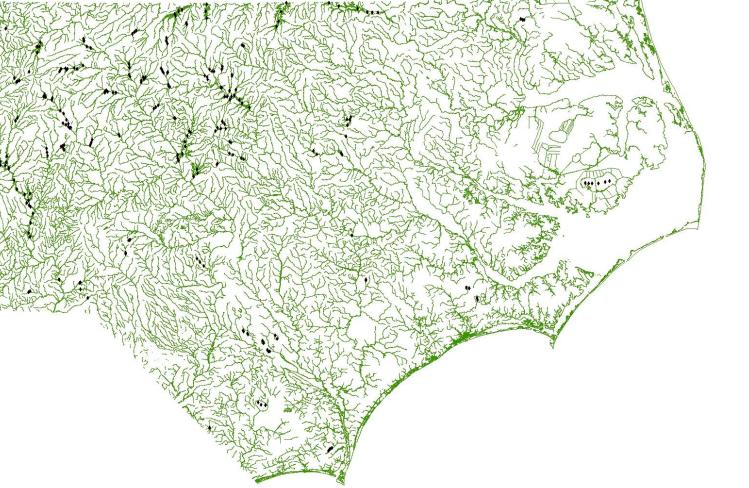
nc coalition monitoring

DWR- Multiple Uses



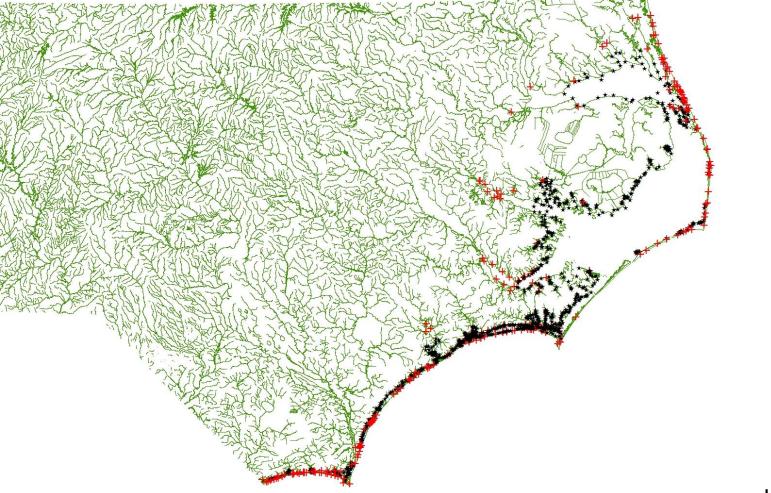
nc ams

Reservoir Lakes- Multiple Uses



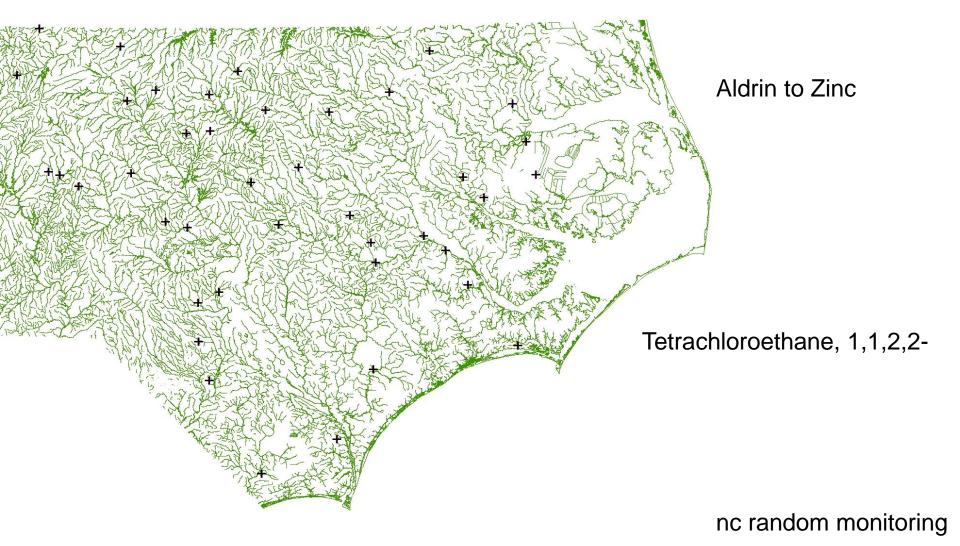
nc lake monitoring

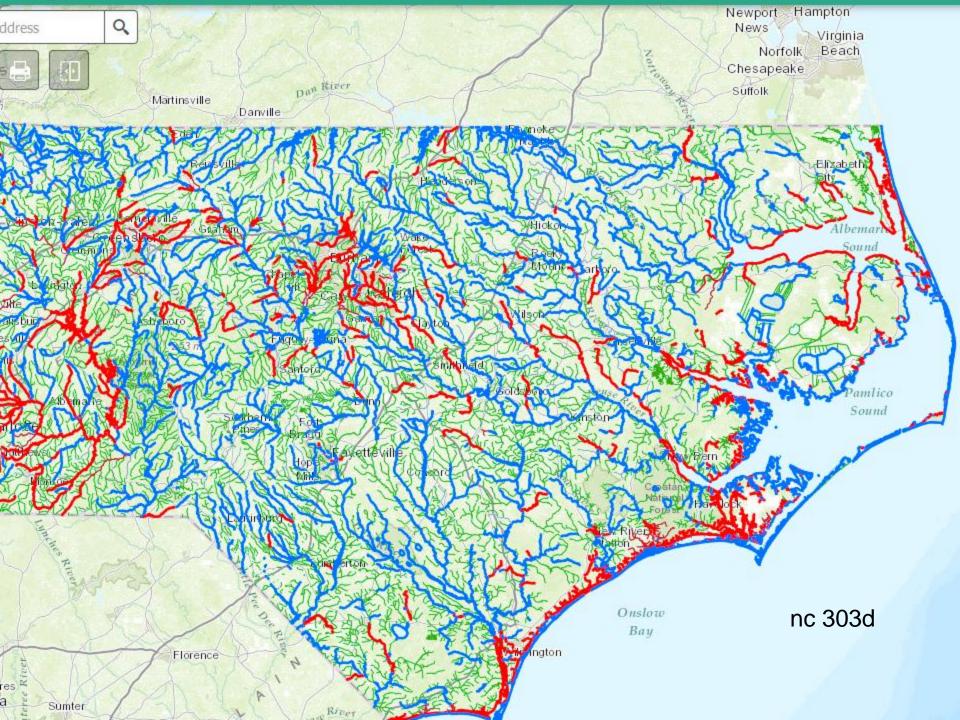
Pathogen Indicators- Shellfish Harvesting and Recreational Water Quality



nc shellfish sanitation

Random Ambient Monitoring-Multiple Uses



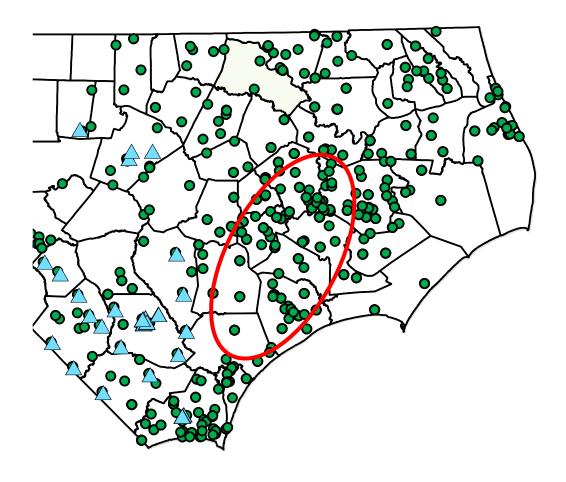


Groundwater Data

- Special water quality studies
 - Piedmont-Mountains REP
 - Southern Coastal Plain
 - Isolated Wetlands Hydrologic Connectivity
- Water level monitoring network state wide
- Contamination monitoring and investigations
- Permitted facilities
 - Water quality protection e.g. CAFO, UIC, Non-discharge
 - Water withdrawals e.g. CCPCUA, large users

Groundwater Data

- ▲ Special Studies
- Div of Water Resources
- O Capacity Use Area



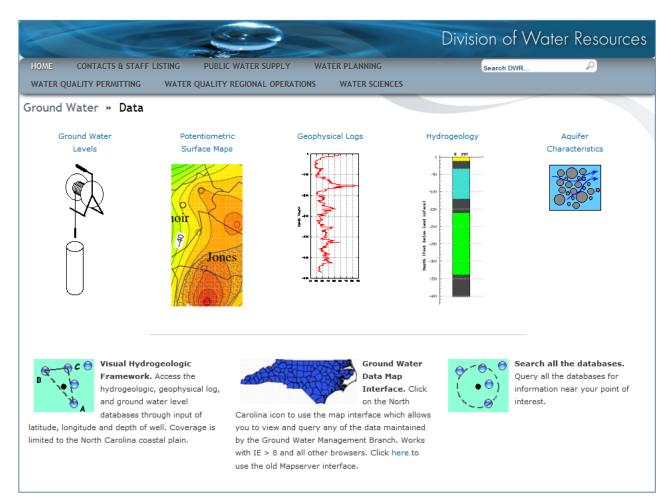
Groundwater Data

- Water level monitoring network
 - Drought management
 - Saltwater intrusion
 - Central Coastal Plain Capacity Use Area

• DWR Website – Groundwater Management Branch

http://www.ncwater.org/?page=357

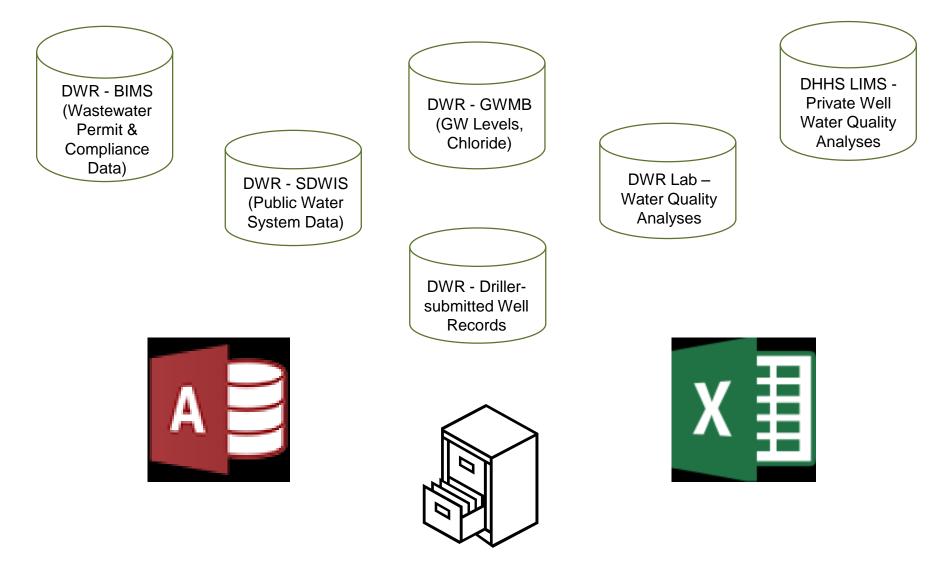
- GW Levels
- Potentiometric Maps
- Geophysical Logs
- Hydrogeology
- Aquifer Characteristics



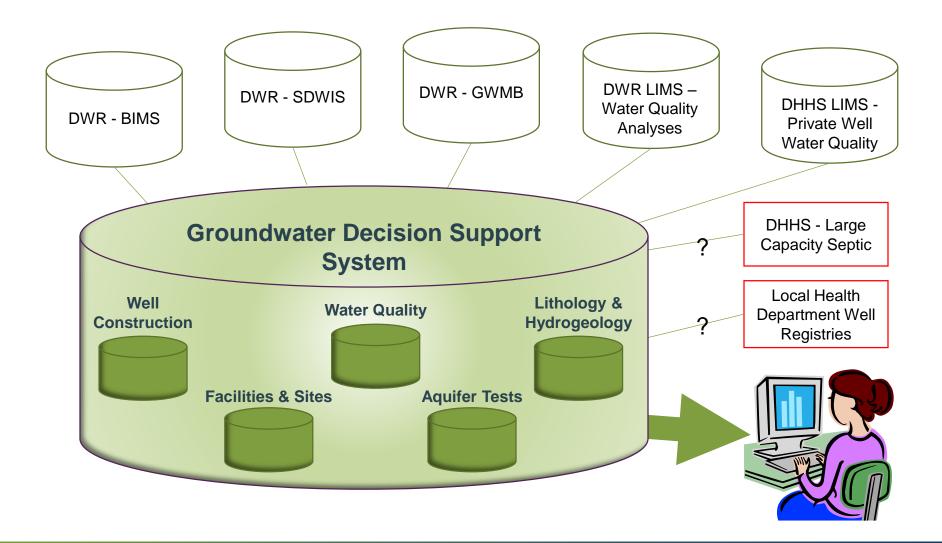
Groundwater Data Management Program Assessment

| Department | DIVISION | SECTION | DATABASE |
|---------------------------------|---------------------------------------|---|---|
| Health and Human Services | Public Health | Environmental Health | On-Site Water Protection Private Well Program |
| | | State PH Lab | |
| | | | |
| Environmental Quality | Information Technology Services | Java Development Section | GWDSS |
| | | | |
| | Water Resources | Public Water Supply | SDWIS - Safe Drinking Water Information System |
| | | | |
| | | Water Planning Section | CCPCUA (Central Coastal Plain Capacity Use Area) |
| | | | |
| | | Water Quality Regional Operations | BIMS - Basinwide Information Management System |
| | | | GW-1 - Well Construction Records |
| | | | Ambient Monitoring/Resource Evaluation Program |

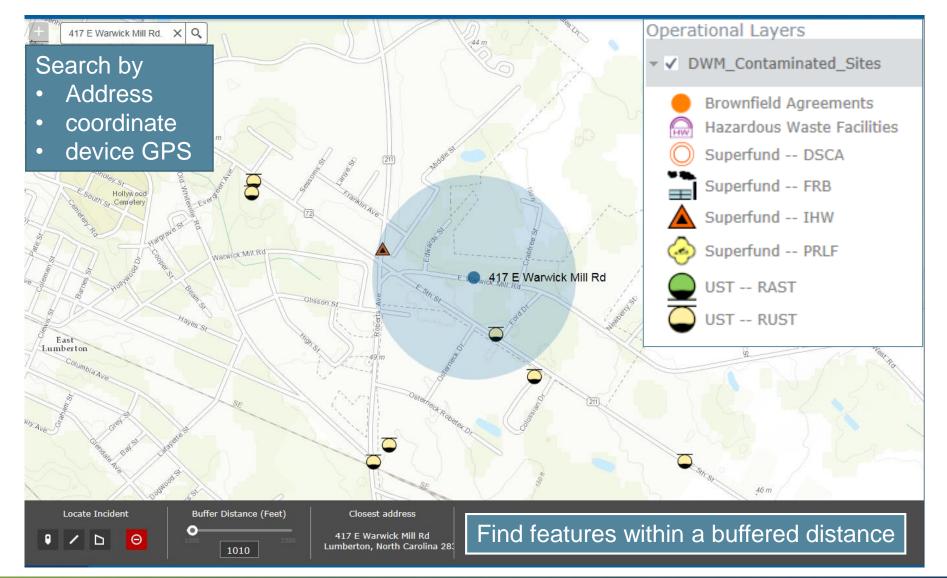
NC Groundwater Data Management (2013)



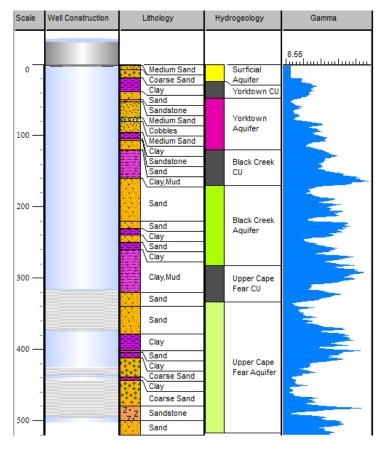
NC Groundwater Data Management: with GWDSS

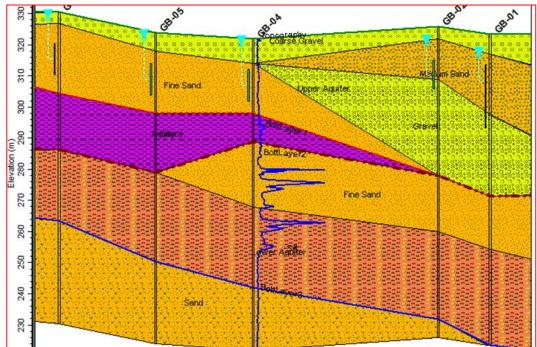


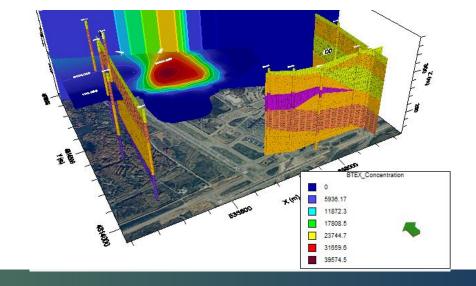
Improved Decision-Making by Data Integration e.g. Private Drinking Water Well Education Act



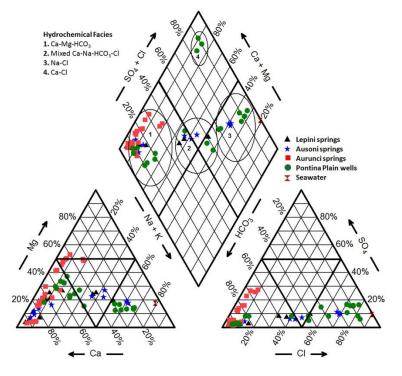
Hydrogeologic Analysis



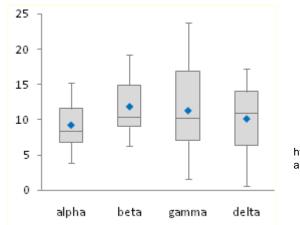




Water Quality Analysis



http://file.scirp.org/Html/1-9401578_22721.htm



http://peltiertech.com/excel-boxand-whisker-diagrams-box-plots/

- Piper, Durov Diagrams, Ternary
- Pie, Stiff, and Radial Diagrams
- X-Y Scatter and Time Series Graphs
- Frequency Histograms
- Box and Whisker (+ time series)
- Geothermometer, Giggenbach Triangle
- Meteoric Water Line
- Quantile Plots
- Detection Summary
- Langelier-Ludwig, Wilcox Plots, Schoeller