

PACKAGE PLANTS, HIGH RATE INFILTRATION SYSTEMS & SEPTIC SYSTEMS – WHAT’S KNOWN

PRESENTED BY DIANNE M. REID

DRAGONFLY RESOURCES LLC

AT THE FRESHWATER IN THE NORTH CAROLINA COASTAL PLAIN CONFERENCE

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“What if, and I know this sounds kooky, we communicated with the **EACH OTHER?**”

WHAT WE DO KNOW ABOUT PACKAGE PLANTS

- POPULAR
 - EASY TO INSTALL
 - FAIRLY EASY TO RUN
 - DON'T NEED SOMEONE ON SITE 24/7
- NOT IDENTIFIED IN THE ACTIVE PERMITS SPREADSHEET
- ASSUME MOST MINORS
- PROBLEMS – POORLY RUN/MAINTAINED, OVERLOADED, UNDER LOADED



MINOR NPDES FACILITIES



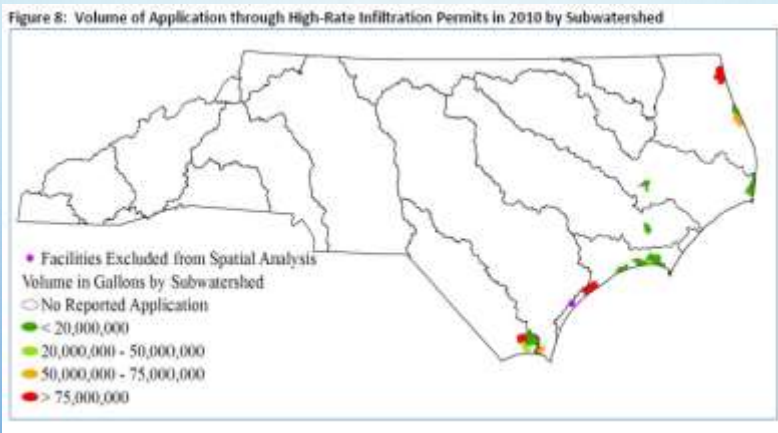
DWR website: [npdes-minor-facility-map](#) 2/2016

MAJOR NPDES FACILITIES



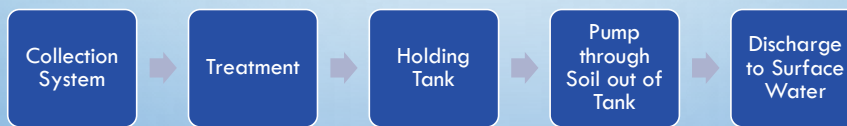
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HIGH RATE INFILTRATION SYSTEMS



HIGH RATE INFILTRATION SYSTEMS

- APPROXIMATELY 7 % OF TOTAL VOLUME NON-DISCHARGE VOLUME IN STATE
- NO GOOD DATA AT THIS POINT
- NO GOOD DIAGRAM



SEPTIC TANK = ON-SITE WASTEWATER SYSTEM

“A MYSTERIOUS CONTRIVANCE CONSISTING OF A VAULT HERMETICALLY CLOSED BY A HYDRAULIC SEAL...IT RAPIDLY TRANSFORMS ALL THE EXCREMENTITIOUS MATTER IT RECEIVES INTO A HOMOGENEOUS FLUID.” JEAN-LOUIS MOURAS, 1881



SEPTIC TANK

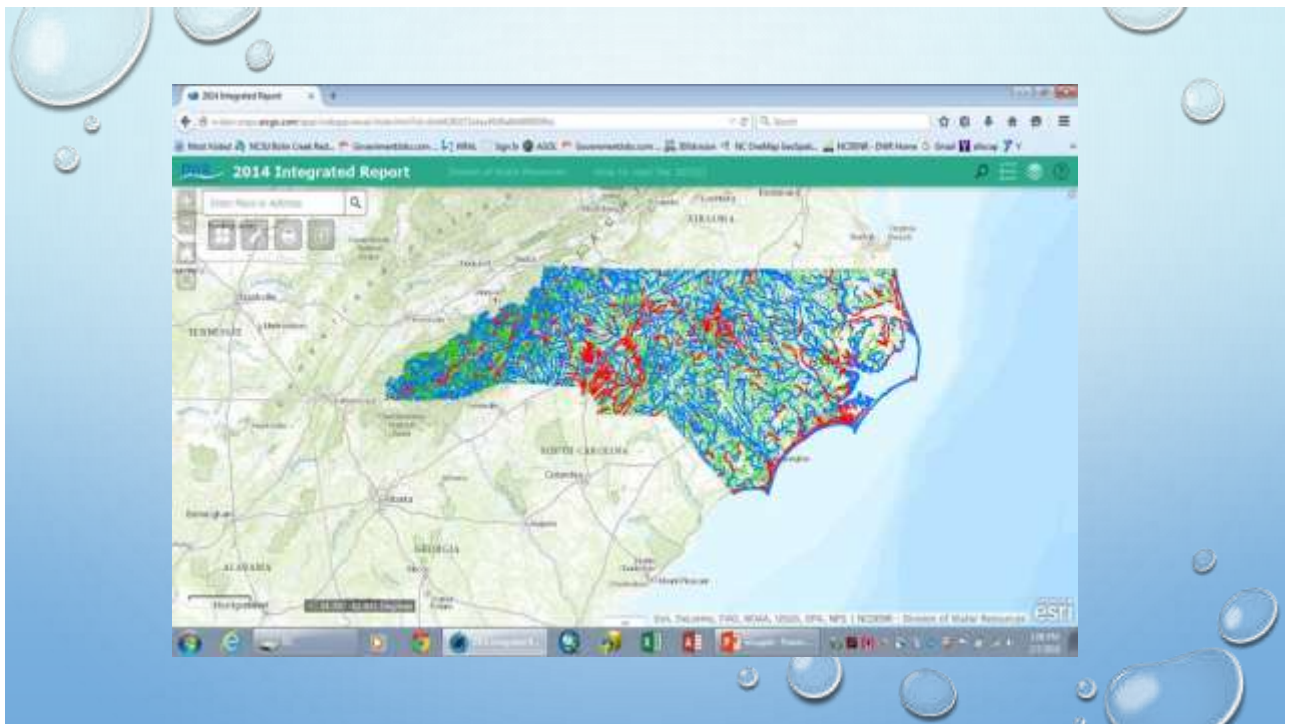
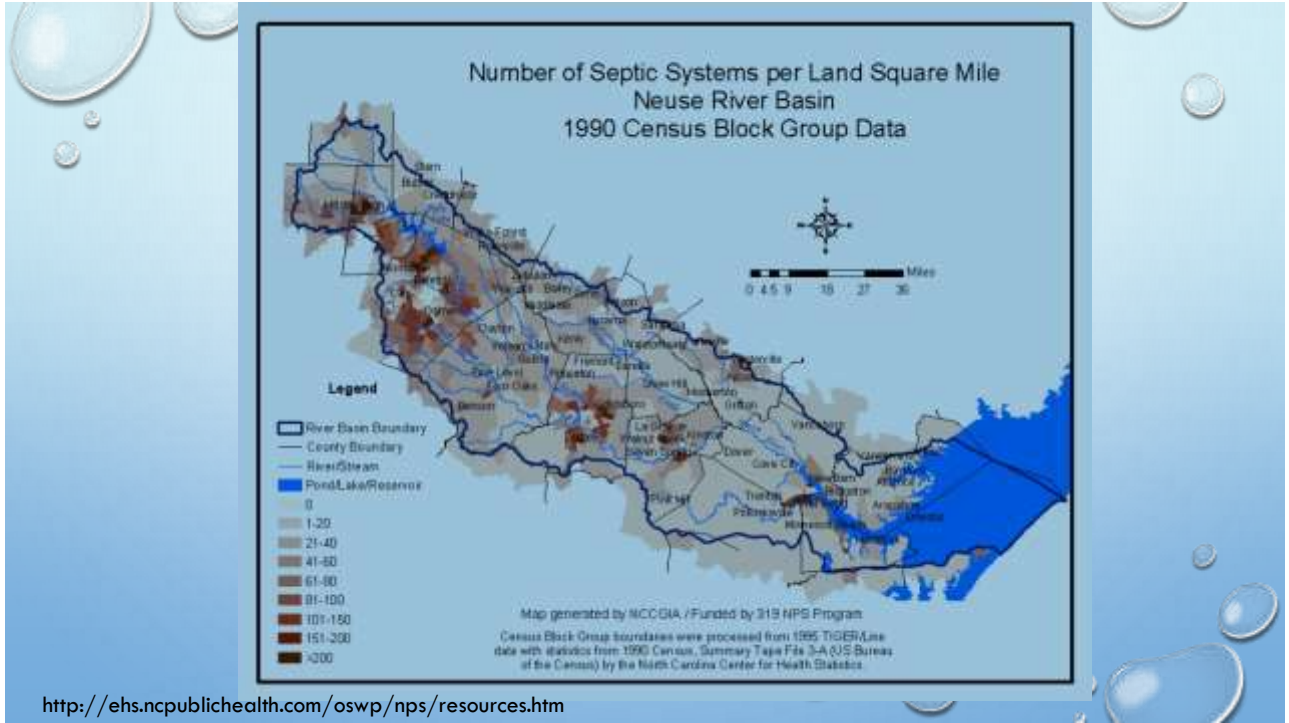


- ~ 50% OF STATE USES
- 2010 – 19% OF PERMITS ISSUED IN COASTAL
- PROBLEMS
 - PEOPLE DON'T KNOW THEY HAVE ONE
 - AGE
 - POOR PLACEMENT
 - POOR TRACKING

ON-SITE WASTEWATER SYSTEMS STUDIES

- PHOSPHORUS IN COASTAL NC – CHARLIE HUMPHREY ECU
 - EFFICIENCY OF REDUCTION PRIOR TO REACHING GROUNDWATER
 - SANDY SOILS – LEAST EFFICIENT
 - SANDY CLAY SOILS W/ 0.25 M SEPARATION – SIGNIFICANT CONTRIBUTION TO GROUNDWATER
 - STREAMS W/ ONSITE SIGNIFICANTLY HIGHER P THAN SEWERED
 - NEED >30 M SETBACK TO GET TO BACKGROUND P





CHALLENGES

- AGING INFRASTRUCTURE
- EDUCATION
- FUNDING
- RESOURCES
- NEW SOLUTIONS



SUMMARY

- NO REAL HANDLE ON EXTENT OF WATER QUALITY IMPACTS FROM LEAKING/FAILING INFRASTRUCTURE – PACKAGE PLANTS, HIGH RATE INFILTRATION SYSTEMS, SEPTIC SYSTEMS
- COMMUNICATION/EDUCATION IS VITAL
- NEED RESOURCES TO ADDRESS

