

Picture from USGS Scientific Investigations Report 2008-5220

Project Progress Presentation: Developing a GIS-Based Software for Estimating Nitrate Fate and Transport from Septic Systems in Surficial Aquifers

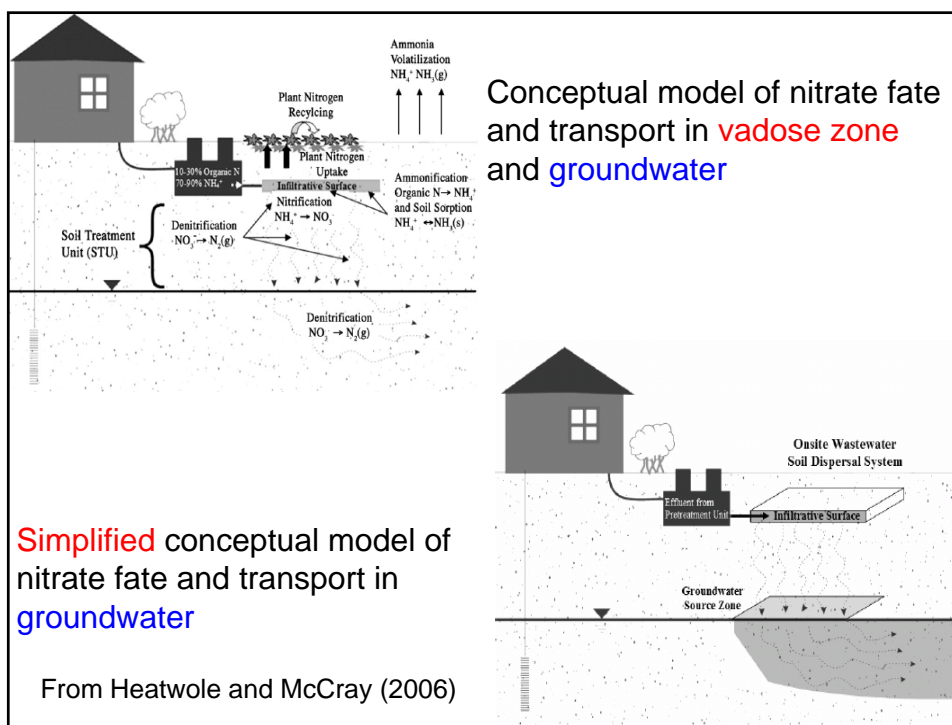
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Project Team

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Presentation Goals

- Brief project **progress** (preliminary study started in May; work under the contract since September),
- Present the GIS-based groundwater **flow module**,
- Present the study of groundwater **denitrification**,
- Solicit **comments and suggestions** from FDEP staff, and
- Discuss **future research**, field data, and **potential collaboration** with other research teams

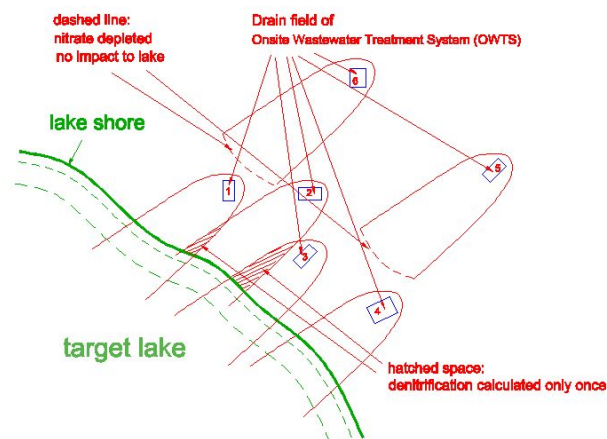


Project Overview

- **Goal:** to develop a GIS-based software for estimating nitrate fate and transport from *septic systems* in surficial aquifer
- **Applications:** to facilitate environment management, protection, and planning
- **Unique features** of the proposed software:
 - **Easy to use** due to system simplifications
 - Consider advection, dispersion, and **denitrification**
 - Address nitrate transport from **normally working septic tanks**
 - Incorporate effect of **spatial locations** of septic systems on nitrate load

Effect of **Denitrification** and **Spatial Locations** of Nitrate Load

Negative or zero N_t indicates no nitrate load from the septic system to the surface water body.



Progress of Software Development

- The proposed software package will consist of three separate modules:
 - GIS-based groundwater flow modeling
 - GIS-based fate and transport modeling
 - GIS-based management package
- The **flow module** has been developed.
- Development of the **fate and transport module**, including the denitrification study, is on-going.