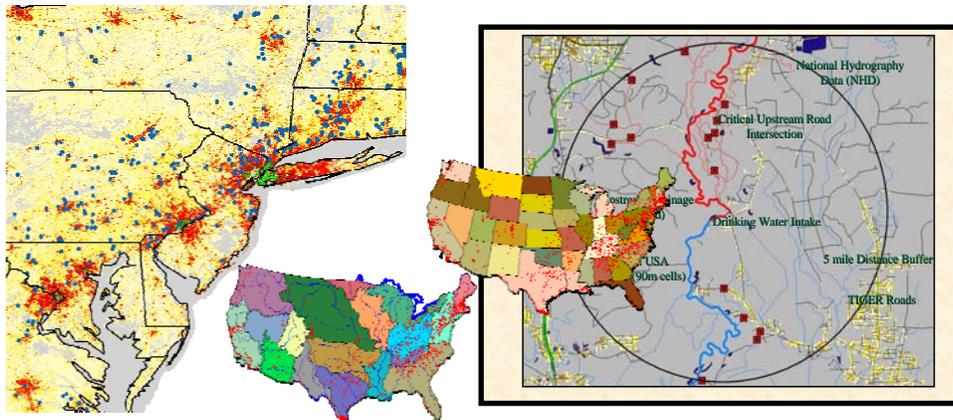


The ORNL Modeling & Simulation Group's **Hydrologic Transport Assessment System (HYTRAS)**

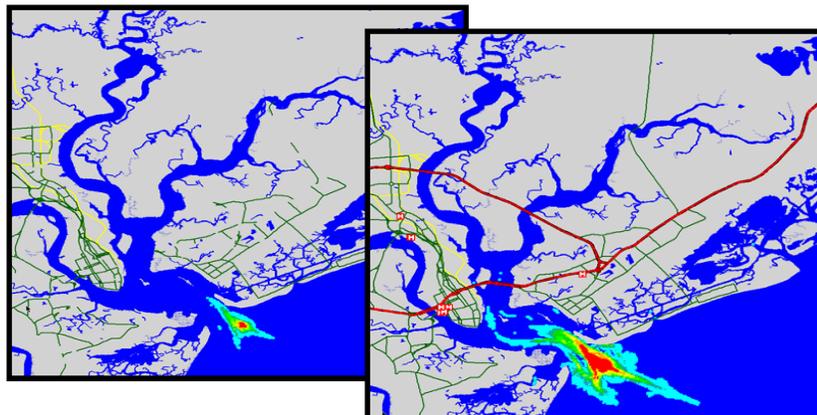
The ORNL Modeling and Simulation Group (MSG) develops sophisticated numerical solutions for a wide range of scientific, engineering, and operational applications. MSG's core competency is computational physics and engineering, and within this context we have developed the Hydrologic Transport Assessment System (**HYTRAS**) software suite. **HYTRAS** is a numerical model for simulating the transport and fate of nuclear, biological, and chemical agents in water bodies. The model predicts agent concentrations over time and distance in rivers or lakes. At present, 731 rivers worldwide are included in **HYTRAS**' river/map database. A new database currently under development will contain thousands of rivers, including drinking-water intakes, for the United States. In addition, **HYTRAS** utilizes population and human-health-effects data to estimate dosage to at-risk populations. Advanced visualization provides simulation results to users. **HYTRAS** analysis capabilities are currently being expanded to include the following.

- A range of analysis granularities; fast models that execute in minutes for emergency response applications and high-fidelity models that must execute on high-performance machines and are used for planning and assessment.
- Runoff models as well as estuary/bay models (called HYTRAS/CH1D, /CH2D, /CH3D).

HYTRAS' robust highly integrated capabilities make it the ideal hazard analysis software tool for an extremely broad range of R&D, industrial, homeland defense, and military applications. We welcome the opportunity to discuss your potential applications and ways **HYTRAS** can contribute to a solution.



HYTRAS can be coupled with GIS-derived infrastructure data to estimate, for example, drinking water contamination resulting from transport of NBC agents in water bodies and sediments



As shown in this notional representation of Charleston Harbor, HYTRAS/CH2D would be capable of simulating agent transport from estuaries into the open ocean