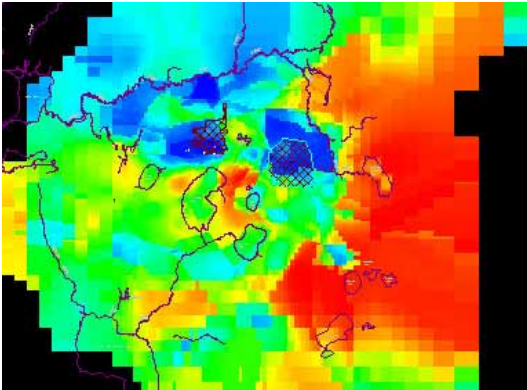


# Surface Water Modeling/Hydrologic Modeling



Models of varying complexity are the standard tools for evaluation of potential hydrologic effects to visualize groundwater movement and to model watershed conditions in today's permitting and review arenas. ESS Group, Inc. staff members have extensive experience with numerical and analytical modeling of both simple and complex hydrologic systems. Modeling packages are often GIS-based systems to allow for incorporation of the wealth of available information.

Our services include development of conceptual hydrologic and geologic models, groundwater flow and contaminant transport analysis, time of travel evaluations, nutrient loading evaluations, watershed-scale evaluations, modeling in support of various permit applications, and independent technical review.



## Groundwater Flow Modeling

- Conceptual Model Development
- Predictive Analysis of Proposed Actions
- Pump Test Evaluation/Capture Zone Analysis
- Zone II Delineation for New Public Water Supplies
- Wastewater Mounding Analysis
- Groundwater/Surface Water Interactions

## Contaminant Transport Modeling

- Conceptual Model Development
- Contaminant Fate and Transport Analysis
- Wastewater Discharge Analysis
- Bacteria, Nutrient, and Pollutant Loading Evaluations

## Watershed/Surface Water Modeling

- Pollutant Loading Estimates
- Identification of Impaired Tributaries or Watersheds
- Modeling in Support of TMDL Development
- Modeling in Support of NPDES Permitting

## Stormwater Modeling

- Pre- and Post-Development Modeling
- HydroCAD (TR-20, TR-55) and Hydroflow Predictive Modeling
- Terrain Modeling
- BASINS, EPA – PLOAD, AVGWLF, SWAT, P8

