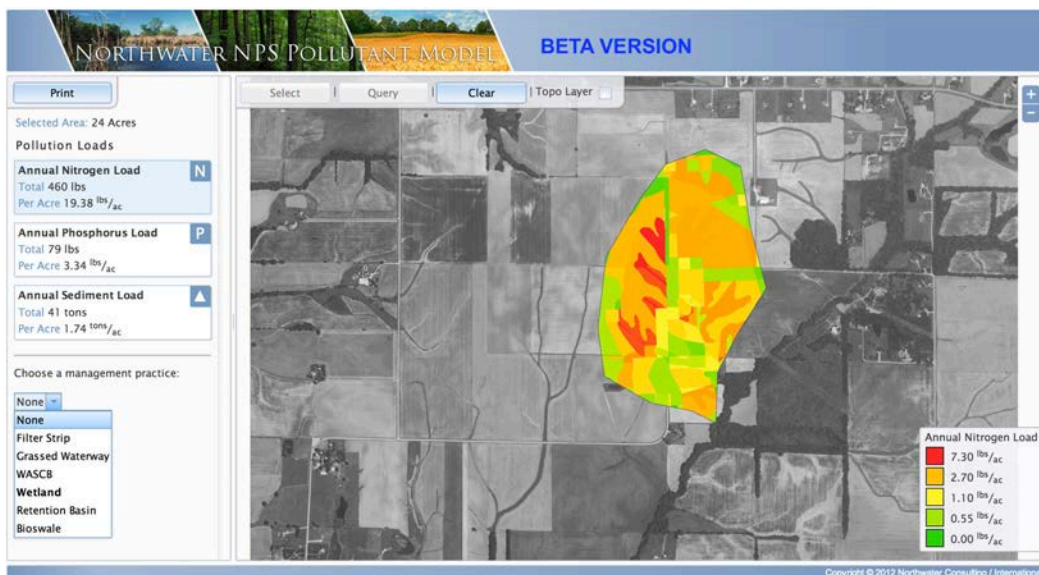
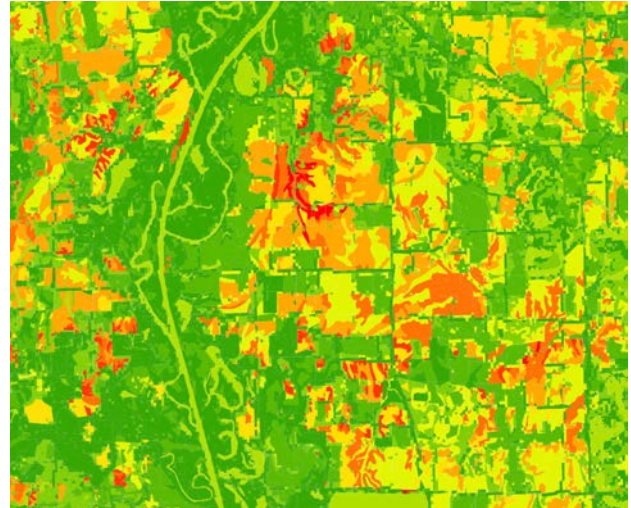




Spatial Watershed Assessment & Management Model (SWAMM)™

Northwater Consulting has developed and successfully applied a customized, spatially based GIS model and management system for estimating non point source pollution loading and identifying specific locations for Best Management Practice (BMP) implementation. Northwater has applied the SWAMM™ system for a range of public sector clients that include:

- Illinois Environmental Protection Agency (IEPA)
- Chicago Metropolitan Agency for Planning (CMAP)
- Illinois Department of Natural Resources (IDNR)
- Lake County Stormwater Management Commission (LCSMC, Illinois)
- The Conservation Foundation
- The City of Charleston, Illinois
- Otter Lake Water Commission, Macoupin County, Illinois
- The City of Carlinville, Illinois
- The City of Wichita, Kansas
- Steuben County, Indiana



SWAMM™ is unique from other watershed pollutant load models because it has the capability to quantify pollution loading and runoff volumes down to the field and parcel level. As a result, it is a preferred tool to quickly and easily estimate total pollutant loading from specific areas and calculate pollutant load reductions resulting from BMP implementation. The model and management module is map-based and simple to understand and visualize.

The foundation of this assessment and management model relies on developing a custom model using soils, landuse, streams, existing water quality and climate data. Once the custom model is developed and calibrated, it is coupled with custom scripts and database protocols to easily evaluate and visualize pollutant loading in the watershed. The system makes it easy to estimate total loading from any delineated area of the watershed, and identifies the most effective areas for BMPs and estimates pollutant load reductions for any delineated area.

The tool works in an ARCGIS environment. A web-based system is currently under beta testing for model use online. The online system includes an easy to manage database to keep track of proposed and installed BMP projects in the watershed and quantifies project-specific and watershed-wide load reductions towards planning goals and water quality targets.

The overall advantage of the model is that it is an extremely effective watershed-planning tool that ensures implementation dollars are applied in the most effective locations. It provides more accurate land-based pollution loading estimates than any other non point source model available and is fully customizable to the conditions and dynamics of each watershed. The utilization of the web-based mapping and database system is an effective tool for planners and administrators to easily evaluate pollution loading, effectiveness of BMPs and have the ability to track progress in the watershed.