

SOURCE WATER ASSESSMENT & PROTECTION

Services Provided

- Surface Water Modeling
- Groundwater Modeling
- GIS Mapping

Client

Florida Dept. of Environmental Protection

SDI provided the Florida Department of Environmental Protection (DEP) with surface water and groundwater modeling services for Phase II of the statewide Source Water Assessment and Protection Program (SWAPP). SDI tasks included work plan development, database development, GIS analysis, coordinating with state agencies, surface water modeling, groundwater and transport modeling, and public relation activities support.

Source Water Protection Investigations

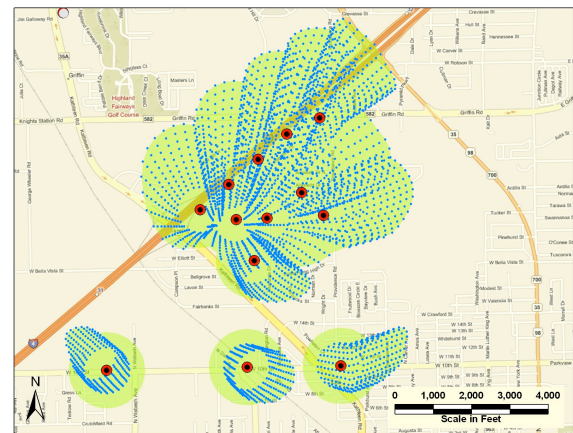
SDI developed maps and text on Florida geology and aquifers for the SWAPP website. Coordination between DEP and all five Florida water management districts (WMDs) resulted in a database of public supply wells and surface water intakes to be used for modeling the source water protection areas. GIS mapping and analysis was used in combining the DEP public water supply database with water use permitting information obtained from the five WMDs.

SWAPP Surface Water Modeling

For public supply surface water intakes, SDI developed surface water models to calculate the 72-hour travel time from the intake. GIS analysis was used to calculate a 200-foot buffer beyond the FEMA 100-year flood plain.

SWAPP Groundwater Modeling

Available groundwater models developed in Florida were reviewed and the most appropriate were obtained for use in determining source water protection areas for public supply wells serving a population greater than 1,000. Models were generally in MODFLOW or WhAEM (EPA's analytic element model). The integrated surface and groundwater model, ISGW, developed by SDI was used for the greater Tampa Bay area. New analytical models were developed for areas in Florida not covered by an existing groundwater model. SDI was responsible for all of the SWFWMD, SRWMD, and NFWMD areas. Public supply wells were simulated at permitted rates and the resulting aquifer water levels were used in MODPATH to determine the source water protection areas.



GIS Mapping

SDI provided GIS maps of SWAPP areas to the DEP, who then overlaid the resulting source water protection areas to 11 other DEP databases to determine aquifer vulnerability.



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