Wastewater Management

In the Wekiva Spring area just north of Orlando, a rule requiring stricter wastewater management requirements in vulnerable areas was developed based on an aquifer vulnerability assessment. Also in this area, land purchases were made based in part on areas identified as “more vulnerable”.

Best Management Practices

“Protecting Florida's Springs: Land Use Planning Strategies and Best Management Practices,” which references FAVA as a resource in the development of springs protection plans, is the result of a team effort of FDEP and the Florida Department of Community Affairs.

Prioritizing Land Purchases

Florida Natural Areas Inventory is using FAVA maps to help prioritize areas for purchase under Florida’s land conservation program known as “Florida Forever.”

Prioritizing Water Quality Sampling

Florida Department of Health is developing ways to use FAVA maps in identifying potential areas of concern for potable-well contamination from various sources and to assist directing water-quality sampling.

Projects currently underway

Currently, FDEP is undertaking a Phase II of the Florida Aquifer Vulnerability Assessment, to be complete in mid-2009. This project involves many refinements to the Phase I model input and more specialized modeling for specific high interest areas in Florida.

The refinements will produce more detailed output maps, and the specialized modeling will allow characterization of aquifer vulnerability on various local scales, including Wakulla County, Levy County, Citrus County, the Sand and Gravel Aquifer in the Pensacola area, and the Biscayne Aquifer in the Miami-Ft. Lauderdale area.

Contact information

If you’d like to know more about the FAVA project or aquifer vulnerability modeling in general, please contact the Department of Environmental Protection/Florida Geological Survey or Advanced GeoSpatial Inc.

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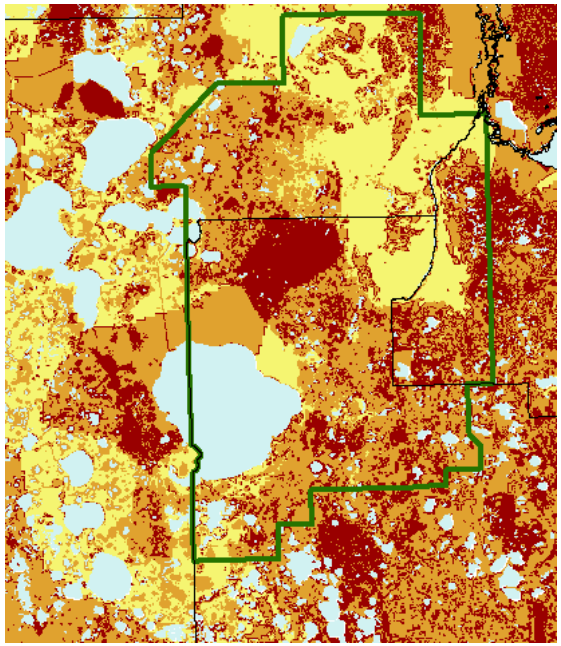
Florida Aquifer Vulnerability Assessments



Results of the Wekiva Aquifer Vulnerability Assessment project

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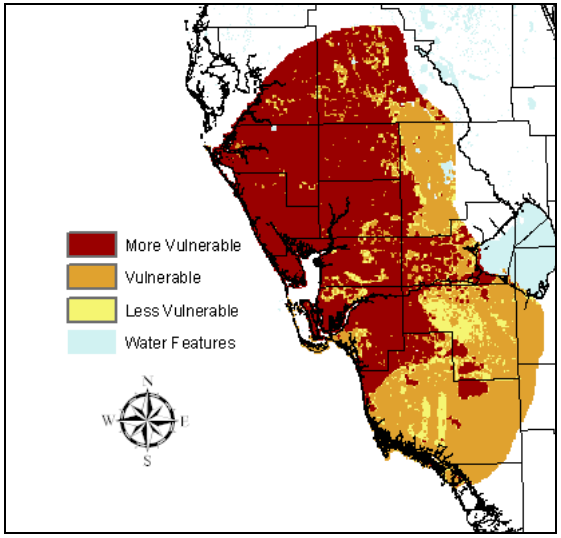
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FLORIDA

Aquifers are underground sources of fresh water and provide up to 90% of Floridia's drinking water. Aquifers also give rise to abundant, unique springs located throughout Florida. All aquifers are vulnerable to contamination to some degree, and different areas require different levels of protection. Aquifer vulnerability assessments are highly adaptable and useful tools for implementing ongoing protection of these sensitive and important natural resources.

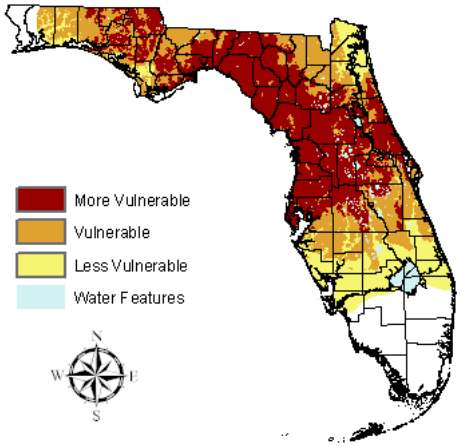
What is an aquifer vulnerability assessment?

Aquifer vulnerability assessments are models of ground-water vulnerability designed to assist community planners, environmental regulators, resource managers, local governments, and other professionals in meeting their objectives for improving water-resource protection.



Relative vulnerability map of the intermediate aquifer system

The Florida Aquifer Vulnerability Assessment project, or FAVA, provides maps that identify areas more vulnerable to contamination, which may require specialized levels of planning. They are developed using a defensible, scientific approach and rely on the combination of data about the natural aquifer system and water quality.



Relative vulnerability map of the Floridan aquifer system

Vulnerability maps developed for the FAVA project involved regional models for each major aquifer system: the Floridan, the intermediate and the surficial. Model extents are based on where the aquifers are major sources of fresh water.

Some factors affecting aquifer vulnerability and which form FAVA model input include soil properties (permeability or drainage), how deeply buried aquifers are beneath land surface, the distribution of sinkholes or collapse features, and aquifer water levels.

FAVA model output consists of vulnerability maps across the given study area exhibiting the probability that an aquifer could become contaminated resulting from activities at land surface.

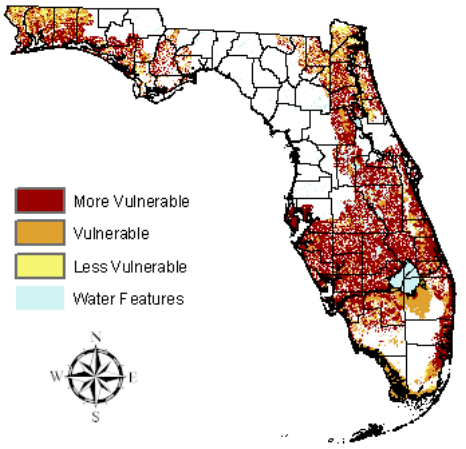
Purpose and benefits of models

The primary goal of the FAVA project is to provide a science-based, water-resource management and protection tool that allows for planning of human activities to help in minimizing adverse impacts on ground-water quality. FAVA results are applied to:

- Source-water protection
- Land-use planning
- Wastewater requirements
- Sensitive land acquisition
- Regional or local scales

Local use versus regional scale models

Aquifer vulnerability maps from localized study areas such as Wekiva Aquifer Vulnerability Assessment, displayed on the cover, allow for better resolution, display of more fine-tuned vulnerability zones and are more applicable on a local scale. This local scale analysis provides a more usable final product for those planners, developers, and regulators, on the local level.



Relative vulnerability map of the surficial aquifer system

How are these models actually used?

Aquifer vulnerability models have wide-ranging uses and have been put to use by a number of state and local agencies to help protect ground water. Some examples of this implementation follow on the back leaf.