
Floridan Aquifer Recharge, Spring Capture Zones and Groundwater Nitrogen

Comprehensive Plan Element Reference(s)

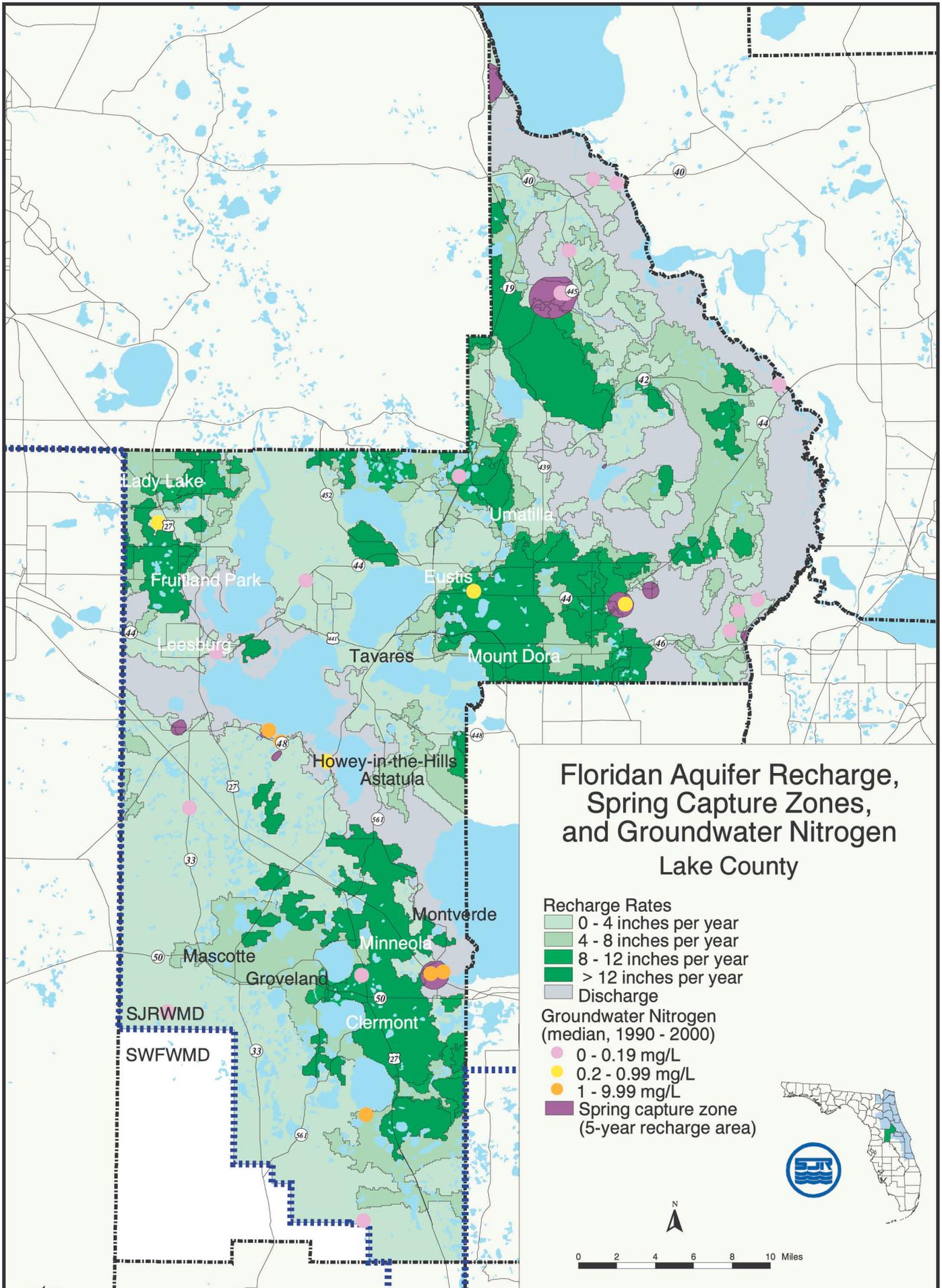
The information provided on this map may be useful for the following plan elements: future land use plan; general sanitary sewer, solid waste, drainage, potable water, and natural groundwater aquifer recharge; and conservation.

Map Information

The District has identified the recharge areas for the Floridan aquifer and their rates of infiltration based on the integration of topographic, soils, geologic, and groundwater hydrology data, using a geographic information system (GIS). The detailed description of the mapping process is contained in the District's 1993 report *Mapping Recharge to the Floridan Aquifer System Using a Geographic Information System*, which includes the recharge map *Recharge Areas of the Floridan Aquifer in the St. Johns River Water Management District*. This districtwide map, which shows four categories of recharge based on inches per year, was updated in December 1995 and is the basis of the map presented here. Surficial aquifer recharge areas have not been mapped on a districtwide basis.

This map also shows spring five-year capture zones, which were delineated using the U.S. Environmental Protection Agency's Wellhead Protection Area model. Five-year capture zones represent the distance a particle in the aquifer travels in a five-year period before reaching a spring head. Aquifer recharge areas proximate to springs and other recharge areas within spring groundwater basins are important because certain land uses or activities within them can adversely affect the water quality of spring discharges.

In addition, the map indicates the groundwater nitrogen concentration at specific locations (wells or springs) where sampling was done. The information on the map is based on the median value for samples collected over the period 1990 to 2000. The number of samples collected at each location varied. Nitrates and nitrites are different nitrogen compounds that make up total nitrogen. Public supply systems with total nitrogen concentrations exceeding 10 milligrams per liter (mg/L) must use a de-nitrification process. Nitrogen levels above 1 mg/L trigger a health advisory warning, with emphasis on infants and the elderly. Background levels of total nitrogen in the Floridan aquifer (water recharged before human settlement) are below 0.05 mg/L. High nitrogen concentrations in groundwater are generally associated with fertilization practices, organic waste, and atmospheric deposition from fossil fuels. In addition to posing health risks, high nitrogen levels affect surface waters and springs through increased algae growth.



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- Recharge Rates**
- 0 - 4 inches per year
 - 4 - 8 inches per year
 - 8 - 12 inches per year
 - > 12 inches per year
 - Discharge
- Groundwater Nitrogen (median, 1990 - 2000)**
- 0 - 0.19 mg/L
 - 0.2 - 0.99 mg/L
 - 1 - 9.99 mg/L
 - Spring capture zone (5-year recharge area)

