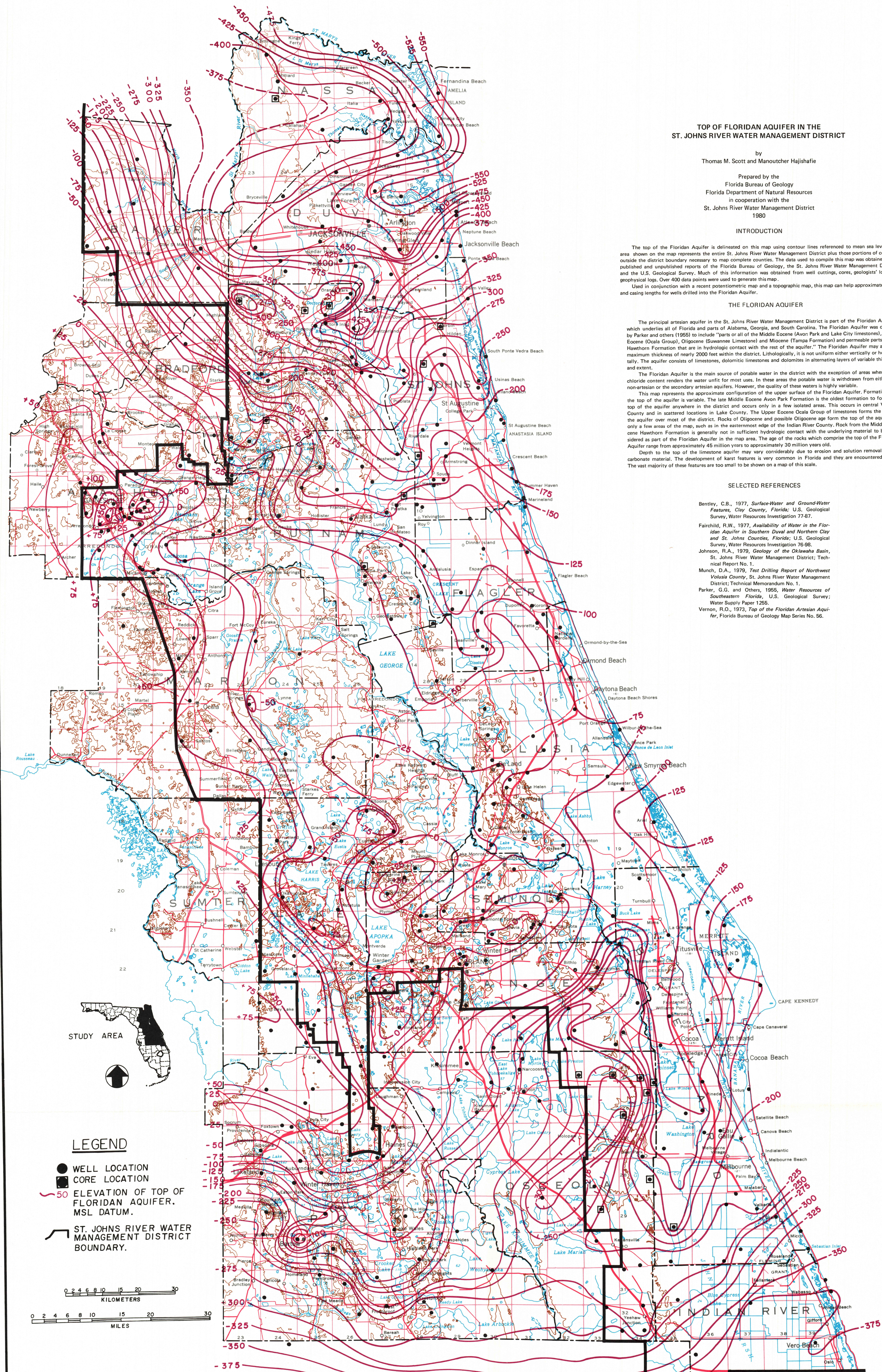




TOP OF FLORIDAN AQUIFER IN THE  
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

by  
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Prepared by the  
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INTRODUCTION

The top of the Floridan Aquifer is delineated on this map using contour lines referenced to mean sea level. The area shown on the map represents the entire St. Johns River Water Management District plus those portions of counties outside the district boundary necessary to map complete counties. The data used to compile this map was obtained from published and unpublished reports of the Florida Bureau of Geology, the St. Johns River Water Management District, and the U.S. Geological Survey. Much of this information was obtained from well cuttings, cores, geologists' logs and geophysical logs. Over 400 data points were used to generate this map.

Used in conjunction with a recent potentiometric map and a topographic map, this map can help approximate depth and casing lengths for wells drilled into the Floridan Aquifer.

THE FLORIDAN AQUIFER

The principal artesian aquifer in the St. Johns River Water Management District is part of the Floridan Aquifer, which underlies all of Florida and parts of Alabama, Georgia, and South Carolina. The Floridan Aquifer was defined by Parker and others (1955) to include "parts or all of the Middle Eocene (Avon Park and Lake City limestones), Upper Eocene (Ocala Group), Oligocene (Suwannee Limestone) and Miocene (Tampa Formation) and permeable parts of the Hawthorn Formation that are in hydrologic contact with the rest of the aquifer." The Floridan Aquifer may attain a maximum thickness of nearly 2000 feet within the district. Lithologically, it is not uniform either vertically or horizontally. The aquifer consists of limestones, dolomitic limestones and dolomites in alternating layers of variable thickness and extent.

The Floridan Aquifer is the main source of potable water in the district with the exception of areas where high chloride content renders the water unfit for most uses. In these areas the potable water is withdrawn from either the non-artesian or the secondary artesian aquifers. However, the quality of these waters is highly variable. This map represents the approximate configuration of the upper surface of the Floridan Aquifer. Formationally, the top of the aquifer is variable. The late Middle Eocene Avon Park Formation is the oldest formation to form the top of the aquifer anywhere in the district and occurs only in a few isolated areas. This occurs in central Volusia County and in scattered locations in Lake County. The Upper Eocene Ocala Group of limestones forms the top of the aquifer over most of the district. Rocks of Oligocene and possible Oligocene age form the top of the aquifer in only a few areas of the map, such as in the easternmost edge of the Indian River County. Rock from the Middle Miocene Hawthorn Formation is generally not in sufficient hydrologic contact with the underlying material to be considered as part of the Floridan Aquifer in the map area. The age of the rocks which comprise the top of the Floridan Aquifer range from approximately 45 million years to approximately 30 million years old.

Depth to the top of the limestone aquifer may vary considerably due to erosion and solution removal of the carbonate material. The development of karst features is very common in Florida and they are encountered often. The vast majority of these features are too small to be shown on a map of this scale.

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- Johnson, R.A., 1979, *Geology of the Oklawaha Basin, St. Johns River Water Management District*; Technical Report No. 1.
- Munch, D.A., 1979, *Test Drilling Report of Northwest Volusia County, St. Johns River Water Management District*; Technical Memorandum No. 1.
- Parker, G.G. and Others, 1955, *Water Resources of Southeastern Florida*, U.S. Geological Survey; Water Supply Paper 1256.
- Vernon, R.O., 1973, *Top of the Floridan Artesian Aquifer, Florida Bureau of Geology Map Series No. 56*.

LEGEND

- WELL LOCATION
- CORE LOCATION
- 50 ELEVATION OF TOP OF FLORIDAN AQUIFER, MSL DATUM.
- ST. JOHNS RIVER WATER MANAGEMENT DISTRICT BOUNDARY.

0 2 4 6 8 10 15 20 30  
KILOMETERS

0 2 4 6 8 10 15 20 30  
MILES

DEPARTMENT OF NATURAL RESOURCES  
BUREAU OF GEOLOGY

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