

FLORIDA'S HYDROGEOLOGIC ENVIRONMENT



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FLORIDA GEOLOGICAL SURVEY

Florida's population growth creates ever-increasing pressures on fragile water resources. This drawing illustrates many of the complex relationships that exist between a Florida community and the environment which sustains it. Water for various uses is withdrawn from subsurface limestones which are extremely porous and permeable. Ground water which resides in these limestones is naturally protected from various types of contaminants by a widespread confining layer (intermediate confining unit) which is predominately clay. The situation is complicated by the presence of discontinuous carbonate lenses (the intermediate aquifer system) and fractures within the confining layer. Limestone is vulnerable to extensive dissolution leading to the development of sinkholes which may breach the

confining unit in the process of their formation. This same dissolution process results in the formation of the large springs, highly prized features of Florida's environment, from which large amounts of ground water discharge constantly. The spring pictured here includes as part of its recharge mechanism, the newly formed sinkhole, ostensibly distant from it. Surficial sands and clayey sands which blanket the confining layer are subject to major impacts resulting from the activities of man. Subsurface storage tanks will be buried within them, municipal solid waste will be disposed into them and locally, small domestic wells may be drilled into them where their permeability and porosity make them a viable surficial aquifer (surficial aquifer system). At the same time, precipitation moving down into these shallow materials

may locally enter sinkholes or fractures within the confining layer, contributing to recharge of the underlying Floridan (limestone) aquifer system.

The Florida Geological Survey may be contacted at 903 West Tennessee Street, Tallahassee, Florida 32304 for a list of survey publications and additional information on hydrogeological relationships and environmental geology in Florida. A reference list is provided here to give examples of Florida Geological Survey publications which address topics related to hydrogeology and the environment.

REFERENCES

- Bond, P.A., 1987, Geology and Waste Disposal in Florida: Florida Geological Survey Map Series 112.
- Hoenstine, R.W., and Lane, B.E., 1991, Environmental Geology and Hydrogeology of Gainesville Area, Florida: Florida Geological Survey Special Publication 33, 70 p.
- Lane, B.E., Hoenstine, R.W., Rupert, F.R., and Spencer, S.M., 1991, Mineral Resources of Union and Bradford Counties, Florida: Florida Geological Survey Map Series 134.
- Rupert, F.R., 1990, Geology of Gadsden County, Florida: Florida Geological Survey Bulletin 62, 61 p.

