



WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

U.S. GEOLOGICAL SURVEY GROUND-WATER STUDIES IN THE U.S. VIRGIN ISLANDS

GROUND-WATER ISSUES

Demands for water in the U.S. Virgin Islands are met by a combination of rainfall catchments, ground water, and desalination. Ground-water sources supply 18 percent of the total water used in the U.S. Virgin Islands. Of the total ground water used (1.1 million gallons per day), 55 percent is used for rural domestic supplies and 45 percent for public supply. Public supplies provide ground water to about 32,000 people. The major ground-water issues in the U.S. Virgin Islands are:

- Increasing demands of a growing population,
- Contamination by hazardous wastes, septic tanks, and leaking sewage facilities, and
- Saline-water intrusion.

U.S. GEOLOGICAL SURVEY PROGRAMS

The U.S. Geological Survey (USGS), established in 1879, is the principal source of scientific and technical expertise in the earth sciences within the Federal government. Activities of the USGS include research and services in the fields of geology, hydrology, and cartography. The mission of the Water Resources Division of the USGS is to develop and disseminate information on the Nation's water resources. The activities of the Water Resources Division in the U.S. Virgin Islands are conducted by scientists, technicians, and support staff at the Caribbean District Office in San Juan, Puerto Rico.

Hydrologic stations are maintained at locations throughout the U.S. Virgin Islands to record data on stream discharge and stage, ground-water levels, and the quality of surface and ground water. Water-resources data are stored in the USGS National Water Data Storage and Retrieval System data base. These data are used by water planners and others involved in decisions that affect the Virgin Island's water resources.

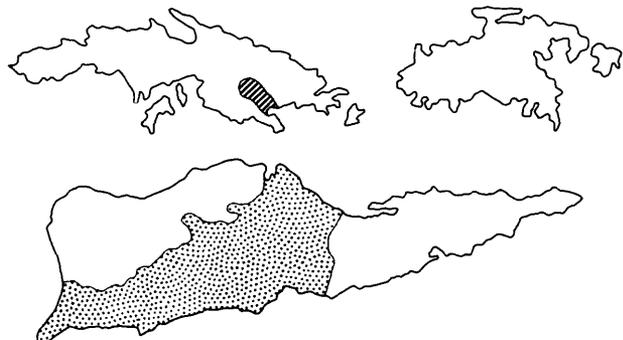
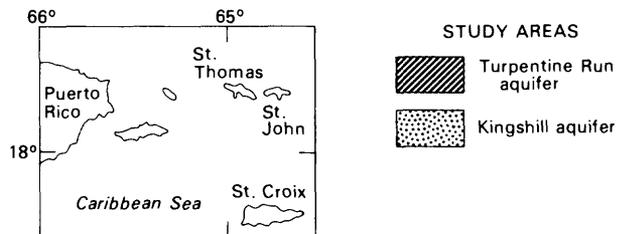
During 1987, the USGS maintained a network of 26 observation wells in the U.S. Virgin Islands to monitor fluctuations in water levels. Water-level measurements from wells are used to monitor ground-water trends; however, they need to be integrated with other observations and ground-water investigations to be most relevant and useful.

Since 1958, the USGS has conducted more than 20 hydrologic investigations in the U.S. Virgin Islands and published approximately 40 abstracts, articles, books, and maps. During 1988, the USGS was involved in two hydrologic investigations in the U.S. Virgin Islands, both of which include studies of

ground-water quantity and quality. These investigations will provide information needed to answer hydrologic questions that are specific to the U.S. Virgin Islands' principal ground-water issues. Both projects are discussed in the following sections.

Kingshill Aquifer, St. Croix

Population growth and the growth of tourism have increased the demand for water in the U.S. Virgin Islands. Surface-water supplies are small to nonexistent, and ground water is the primary source for new development. Information on ground-water movement, areas of ground-water recharge and discharge, chemical quality of ground water, and the development potential of the aquifer systems in the islands is needed by officials to manage the water resources more effectively. Scientists working under the Caribbean Islands Regional Aquifer System Analysis project began to collect this information in 1984 (the study is funded entirely by the USGS). Hydrogeologic and water-quality data are being collected; maps showing the extent, thickness, structure, and water quality of the aquifers will be compiled; and a ground-water-flow model of the Kingshill aquifer system on St. Croix will be developed. The model will



be used to define the water budget and to investigate the response of the aquifer to various pumping rates. The results of this study will be used by water managers to plan future ground-water development on St. Croix.

Contamination in the Turpentine Run Aquifer

Volatile organic compounds have been detected recently in the Turpentine Run aquifer near the Tutu well field on St. Thomas. This site is now under investigation by the U.S. Environmental Protection Agency (EPA). The USGS, in a cooperative agreement with the EPA, delineated the ground-water flow direction within the contaminated area. The USGS compiled available data, measured water levels in existing wells, and prepared a map showing ground-water flow direction. The results of this study are being used by the EPA to determine the source of the volatile organic compounds and will be used to monitor the results of corrective action.

GROUND-WATER MANAGEMENT

The principal agencies responsible for ground-water management in the U.S. Virgin Islands are the U.S. Virgin Islands Department of Planning and Natural Resources (DPNR) and the EPA. The DPNR is responsible for administration and enforcement of most laws related to water resources and water pollution in the U.S. Virgin Islands. The EPA is responsible for the management of ground water, but has delegated the implementation of some of its programs and regulations to the DPNR. These agencies use ground-water data and the results of ground-water studies provided by the USGS to carry out their responsibilities.

Open-File Report 88-163

SELECTED REFERENCES

- Gomez-Gomez, Fernando, 1987, Planning report for the Caribbean Islands regional aquifer-system analysis project: U.S. Geological Survey Water-Resources Investigations Report 86-4074, 50 p.
- Quinones-Marquez, Ferdinand, and Pena-Cruz, Gilberto, 1985, Water resources investigations in Puerto Rico and the U.S. Virgin Islands: U.S. Geological Survey Open-File Report 85-556, 43 p.
- Quinones-Marquez, Ferdinand, and Rivera, Elba, 1985, Publications of the U.S. Geological Survey Water Resources Division for Puerto Rico and the U.S. Virgin Islands, 1946-1985: U.S. Geological Survey Open-File Report 84-229, 21 p.
- U.S. Geological Survey, 1984, National water summary 1983—Hydrologic events and issues: U.S. Geological Survey Water-Supply Paper 2250, 243 p.
- 1985, National water summary 1984—Hydrologic events, selected water-quality trends, and ground-water resources: U.S. Geological Survey Water-Supply Paper 2275, 467 p.
- Zack, Allen, Rodriguez-Alonso, Teresita, and Roman-Mas, Angel, 1988, U.S. Virgin Islands ground-water quality: U.S. Geological Survey Open-File Report 87-756, 4 p.

Information on technical reports and data related to ground water in the U.S. Virgin Islands can be obtained from:

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