



## U.S. Geological Survey, Virginia District

For more than 100 years, USGS has been collecting information on Virginia's water resources and conducting hydrologic investigations **in cooperation with State, Local, and Federal agencies**. USGS personnel in Virginia operate stream gages, observation well networks, and water-quality monitoring stations to provide **reliable scientific information needed to make informed management decisions**. We also conduct interpretive investigations of specific water-resources problems. Much of this work is jointly funded by State and Local agencies. Depending on the availability of funds, **USGS can match up to 50 percent of the project costs**.

### Technical Resources

- Well-trained technical staff with detailed knowledge of local and regional water-resource conditions
- Nationally recognized leadership in the operation of stream gaging stations and ground-water observation well networks
- National databases; national water-quality laboratory
- Well-defined protocols supported by national quality assurance/quality control programs
- Technical support by the USGS National Research Program and more than 50 offices nationwide
- Access to expertise in the USGS Geology, Mapping, and Biology Disciplines
- Geographic information systems (GIS)
- Custom hydrologic instrumentation
- HAZMAT-trained personnel experienced in conducting CERCLA and RCRA facility investigations

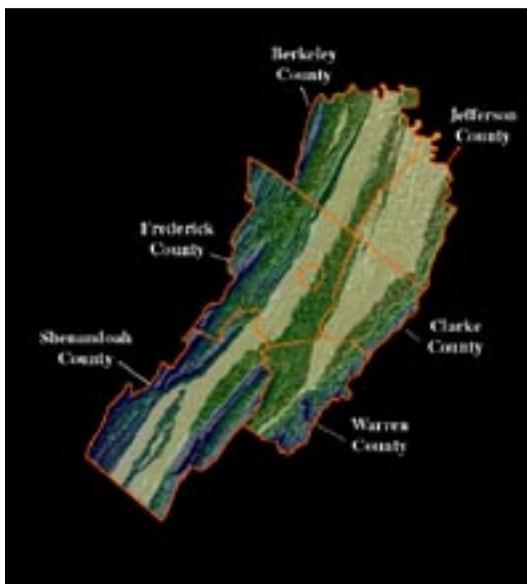
### Technical Capabilities

- Appraisals of water resources at local, regional, and national scales
- Data collection and analyses of surface water, ground water, and water quality
- Analyses of minimum instream flows
- Multidisciplinary studies (ground water, surface water, water quality, mapping, and aquatic ecology)
- Hydrologic modeling (ground water, surface water, watershed, and solute and sediment transport)
- Age-dating of ground water using Freon (CFCs) and isotopes as tracers
- Custom laboratory analyses of septic waste and emerging contaminants
- Bacteria source tracking
- GIS analysis of factors affecting hydrologic conditions
- Acoustic velocity, Doppler, and real-time surface-water monitoring technology
- Delivery of real-time streamflow, ground-water, and water-quality data over the Internet

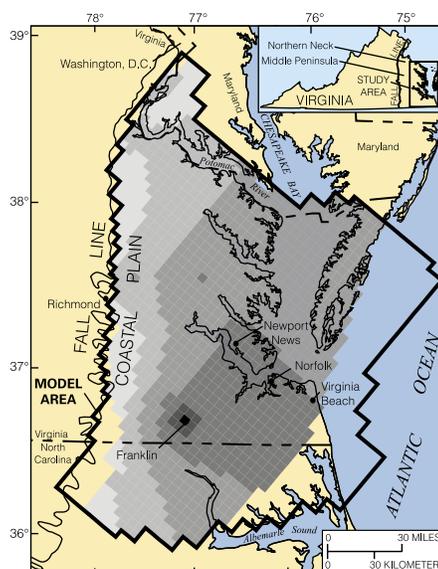
## Recent and current hydrologic studies in Virginia



Mapping physical habitat along the North Fork Shenandoah River for minimum instream flow analyses



County-wide and regional ground-water resource assessments in the Shenandoah Valley



Modeling of ground-water flow in Coastal Plain aquifers (map shows outline of modeled area)



Collection of feces for bacteria source tracking studies and watershed modeling to support development of total maximum daily loads (TMDLs)

### Other studies include...

- Assessment of the fate and transport of nitrogen in ground water affected by nonpoint sources
- Water-quality assessment of streams and reservoirs that feed into public water supplies
- Measurement of nutrient and sediment loads in tributaries discharging to Chesapeake Bay
- Measurement of sediment loads from small watersheds
- Performance assessment of storm-water best management practices (BMPs)
- Assessment of saltwater intrusion in southeastern Virginia and on the Eastern Shore

### USGS Mission

The USGS serves the Nation by providing reliable scientific information to

- describe and understand the Earth
- minimize loss of life and property from natural disasters
- manage water, biological, energy, and mineral resources; and
- enhance and protect our quality of life.

### For more information

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