

North of the Mason-Dixon Line— an update on issues and USGS work in the Great Valley in Pa.



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Outline of presentation

- Ground-water levels on the web
- Nitrate source tracing
- Recharge
- Issues in the Great Valley

Spring Flow Monitoring—Developing areas

Karst Issues—"Bridges over troubled waters"



New look for ICPRB-USGS Ground-water levels on the web

- Less Navigation to Conditions Map
- Improved explanation of data
- Coming soon--New W.Va. well in Mineral Co.

- Current Network
- Current Condition
- Min-0173
- Pendleton Co. in '05

Ground-Water Conditions, Potomac River Basin

[Conditions Map](#)

[About](#)

[Links](#)

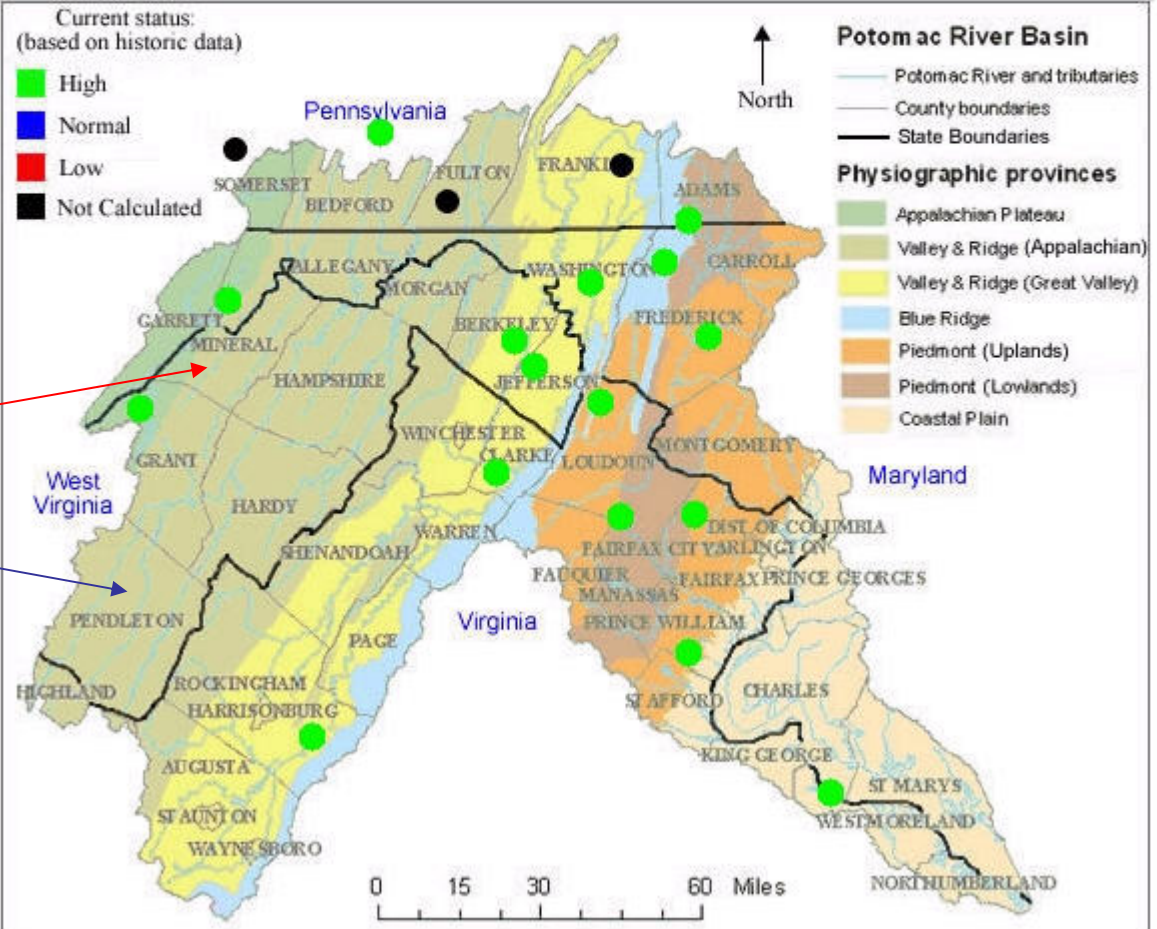
[Contacts](#)

Ground-water Conditions

[How do I interpret this information?](#)

Potomac River Basin Map

mouse over a well for location information - select a station for more information





Outline of presentation

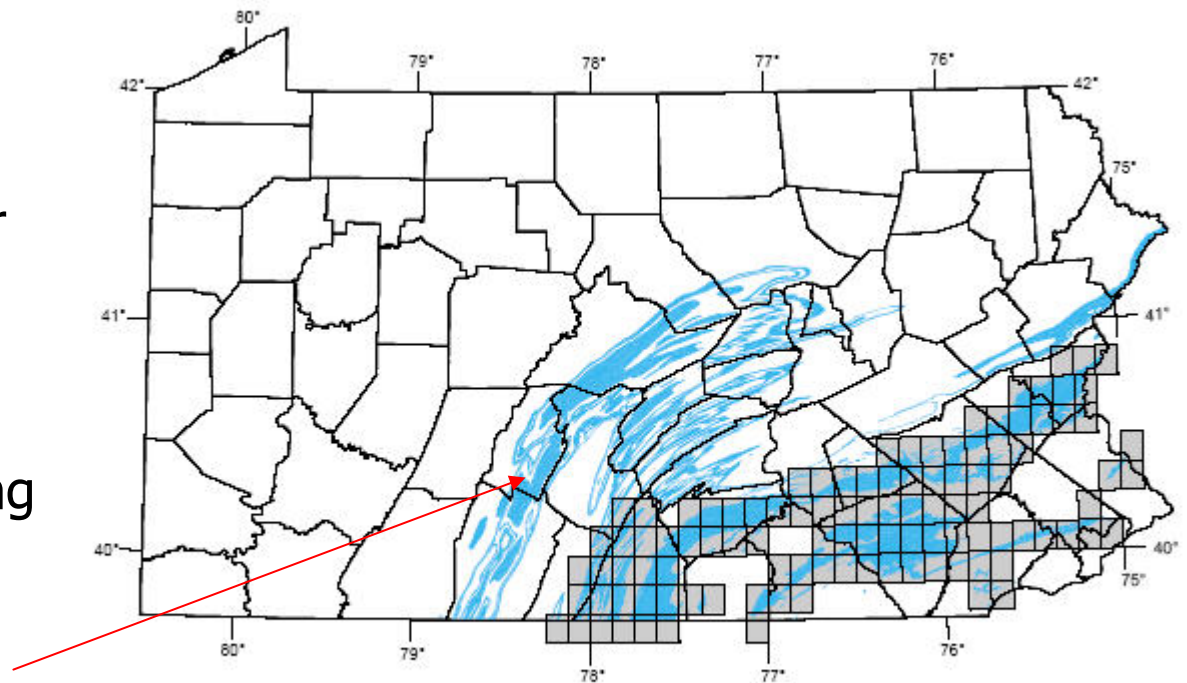
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Nitrate in Limestone Aquifers

- Widespread contaminant
- Treatment or blending to meet MCL
- Source tracing study
Martinsburg,
Blair Co.

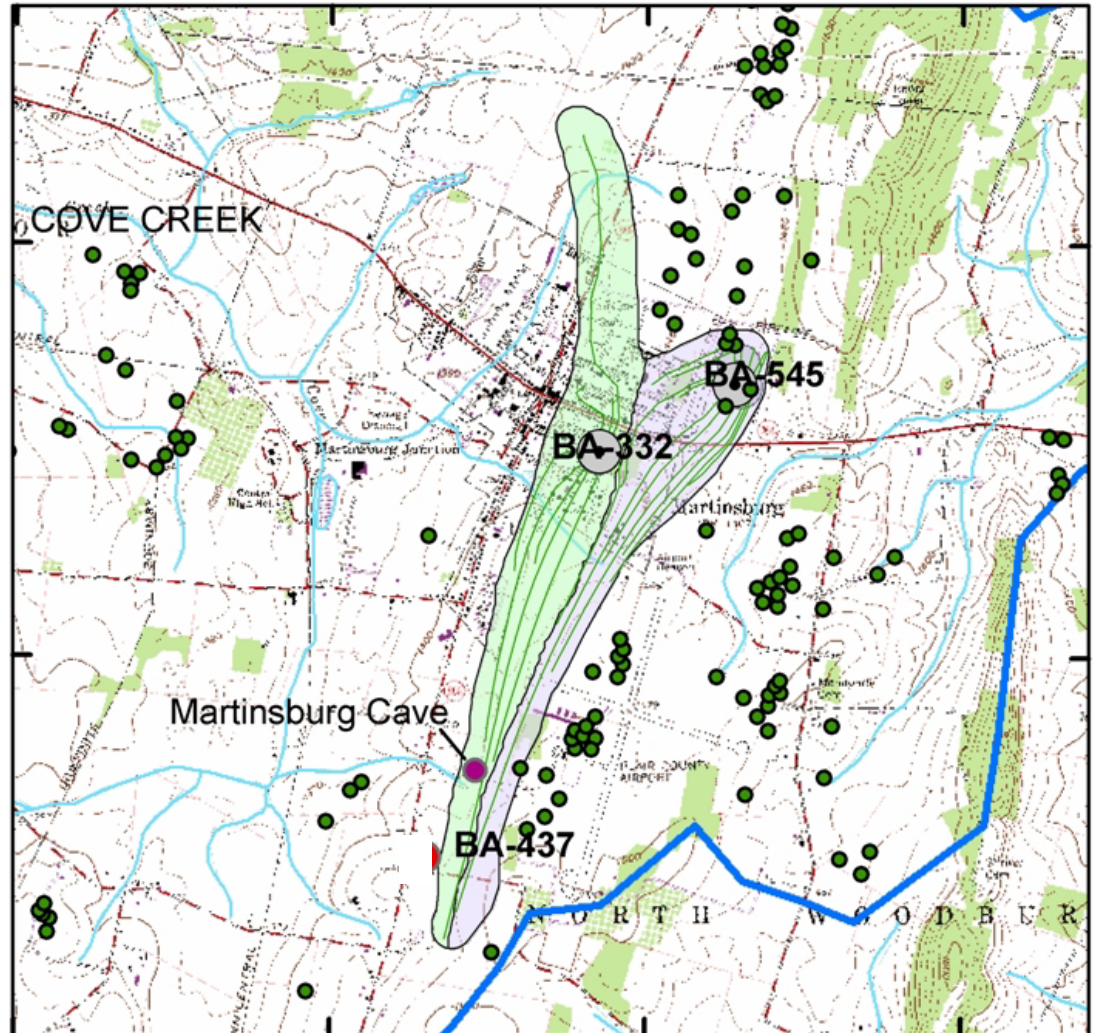


*Gray indicates area of 7.5-minute quadrangles that show karst density data.
Blue represents areas where carbonate rocks are at the surface.

Nitrate sources near supply wells

o Water Sources

- Geologic Framework
- Flow model
- Geochemical indicators





Nitrate source tracing

- Multiple lines of evidence
- Municipal sewage least likely source
- Manure and chemical fertilizer likely sources
- Results in USGS Report 2004-5124



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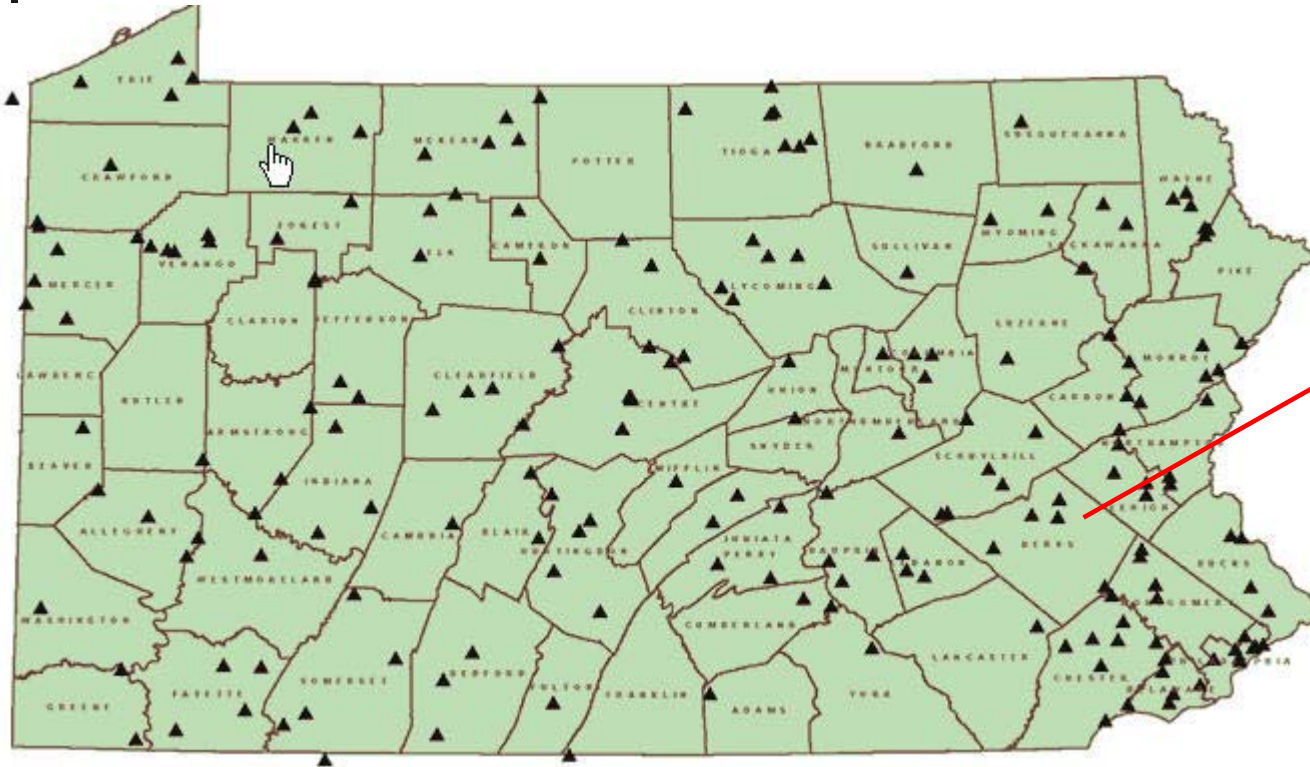


Recharge for water budgets

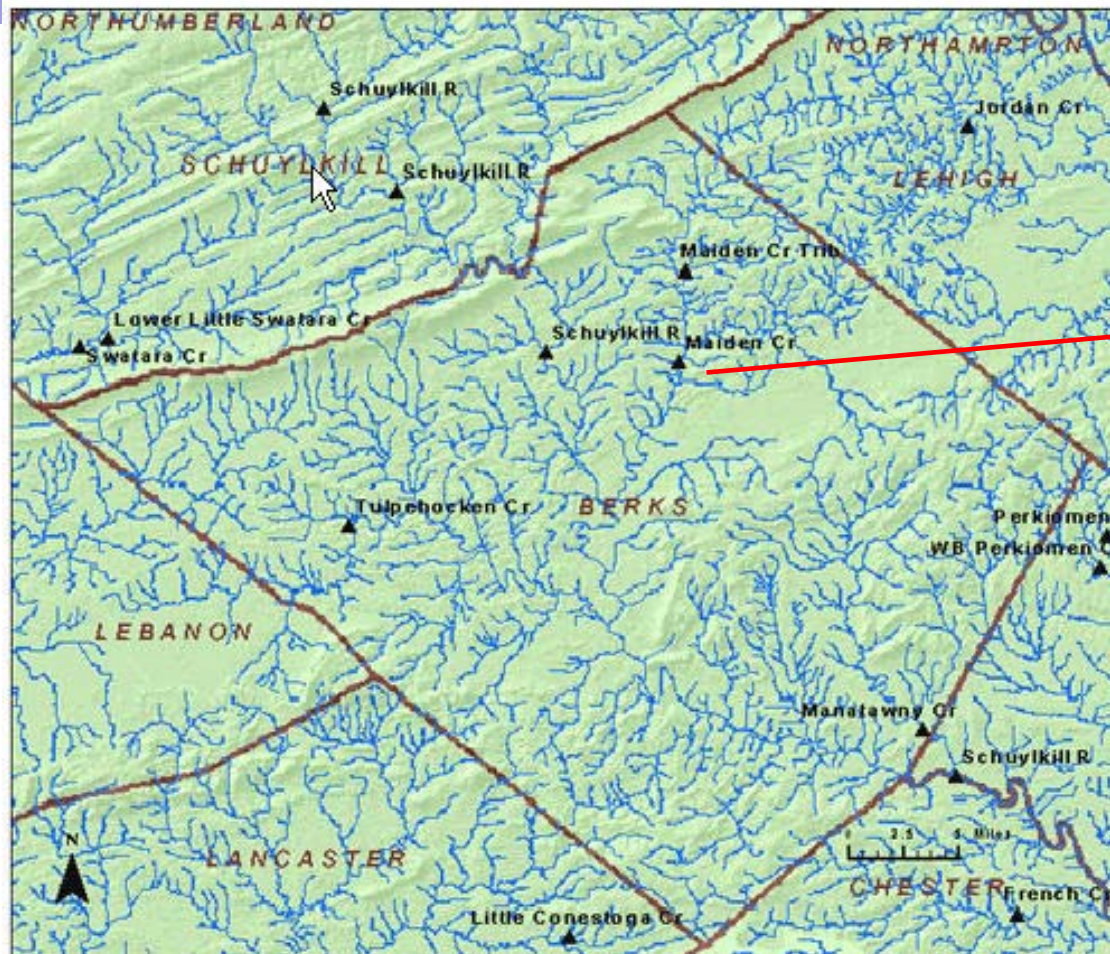
- Ground-Water Recharge Estimates
- <http://pa.water.usgs.gov/recharge/>

Select location of interest

- Berks County in Great Valley



Select a stream gage



■ Maiden Creek

Many display options

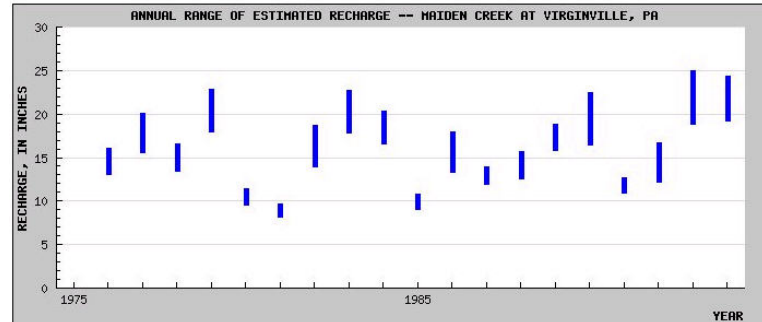
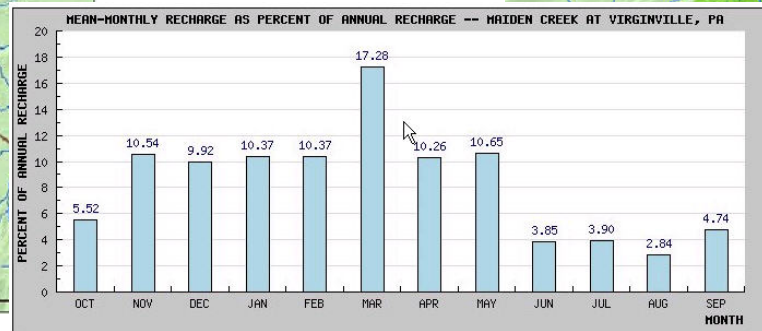
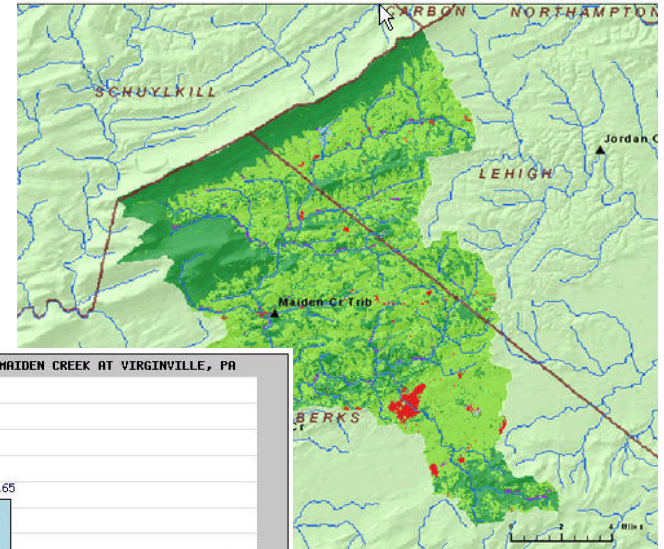
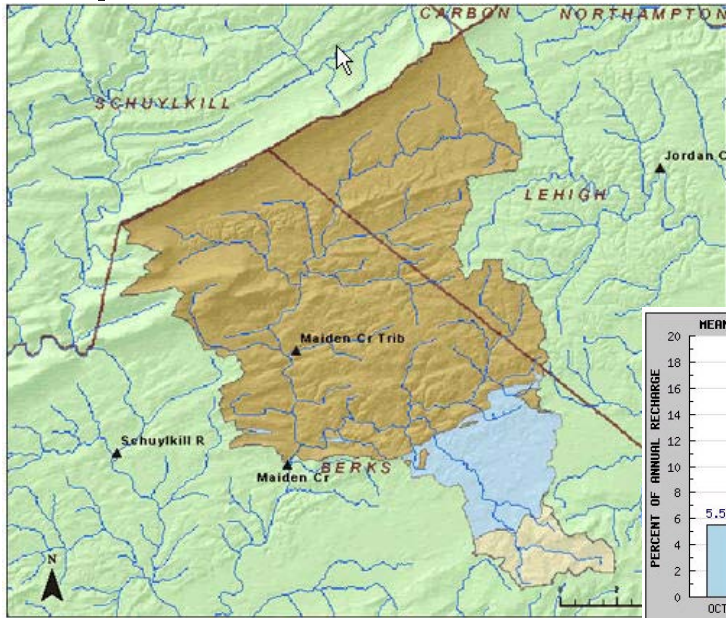
Maiden Creek at Virginville, PA

Available Options						
Graphs	Data Tables	Detailed Station Information	Land Use Map	Geology Map	Back to county map	Back to state map

Mean-Annual Recharge Estimates for Period of Record, in inches	
From Recession Curve Displacement (RORA) Method	17.94
From Hydrograph Separation of Baseflow (RORA) Method	14.7

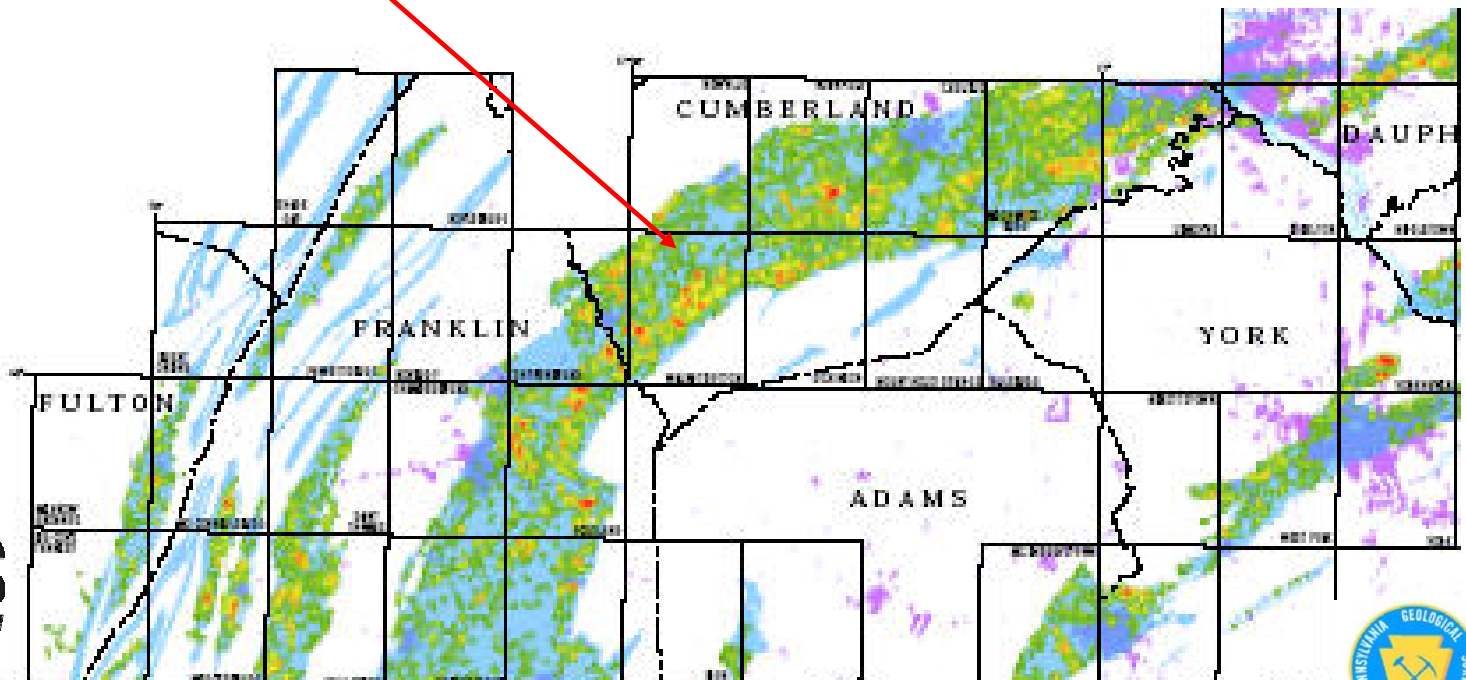
Basin Characteristics	
Drainage Area (square miles)	159.0
Period of Record Used for Estimating Recharge	1974-1994
Land Cover (show map) (Forest/Agriculture/Developed/Other) as % of Area	41.4/56.1/1.4/1.1
Rock Types (show map) (Sandstone and Shale/Carbonate/Crystalline/Unconsolidated Sediments) as % of Area	84.4/10.8/4.8/0.0

Maiden Creek basin



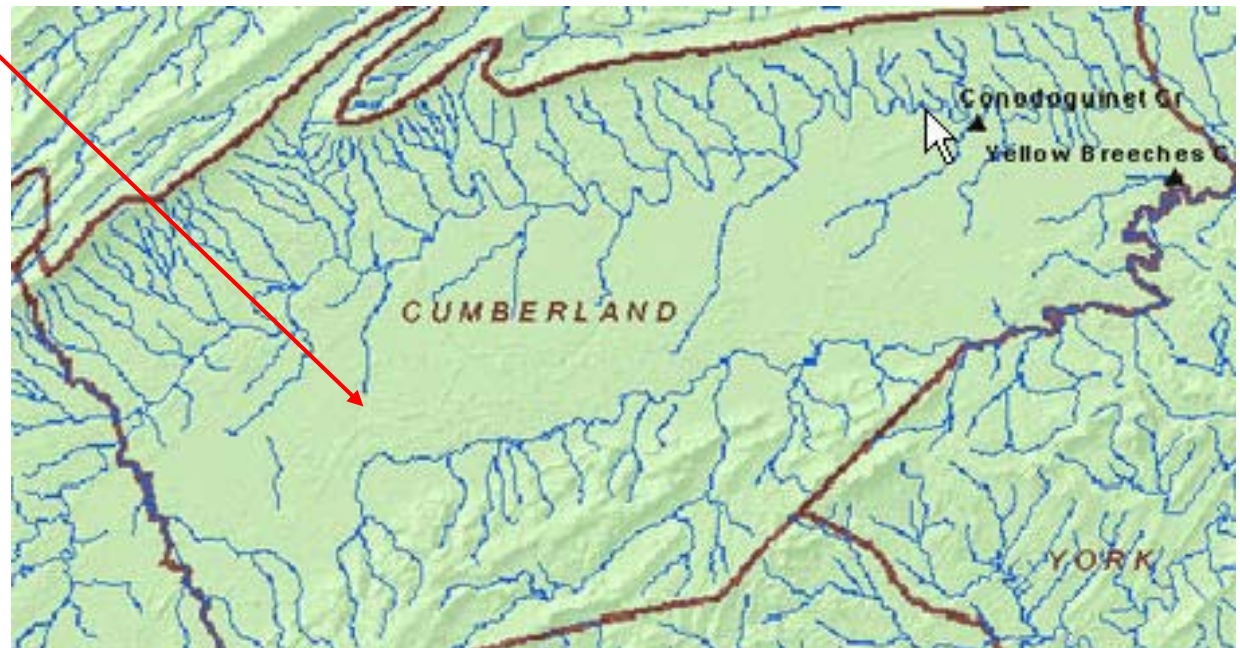
Issues in the Great Valley

- Spring Flow Monitoring—Developing areas

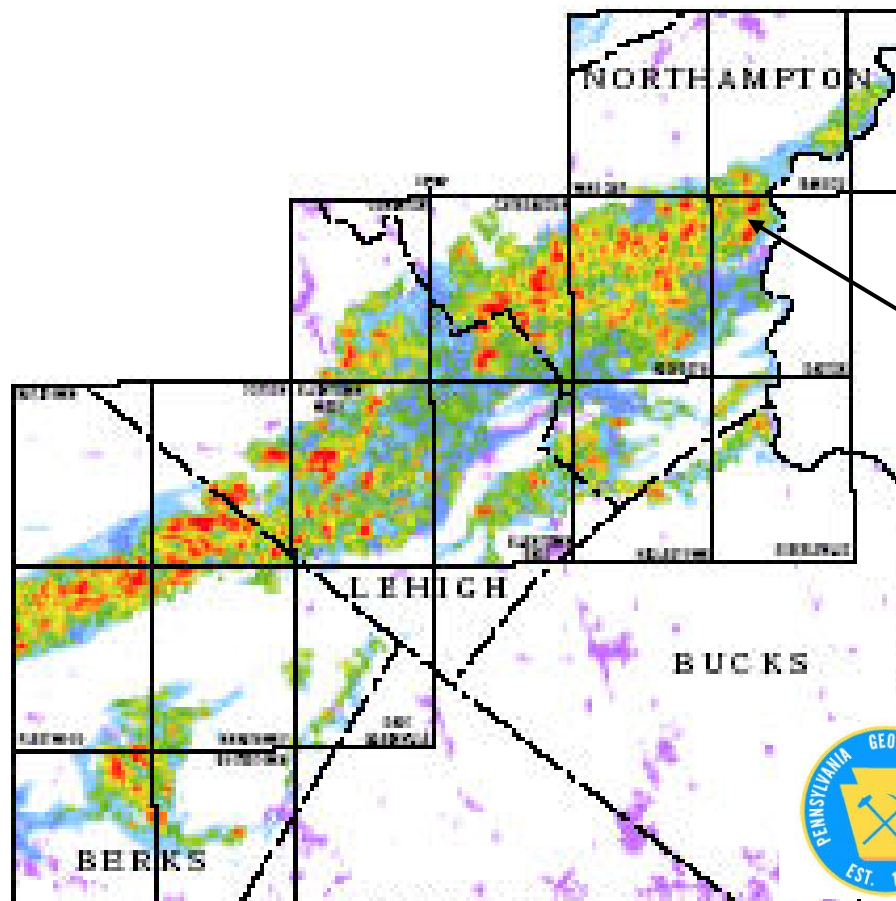


Quarry/Aquifer/Spring Interactions

- Big Spring,
Cumberland
County
Discharge
Turbidity



Karst Issues—



Northampton
County
Stockertown
Sinkholes





“Bridges over troubled waters”

- Bridge failure--\$10 million plus
- Sinkholes in Bushkill Creek channel are cause of collapse
- Stream channel lining ongoing to protect structures

PRIORITY AREAS FOR SINKHOLE REMEDIATION

SINKHOLES FROM 2004 SURVEY IN YELLOW

