



Water Availability Screening Tools and Their Application in the Delaware River Basin

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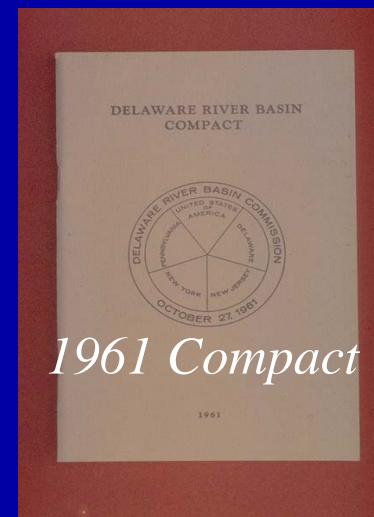
Basin Facts

- Largest un-dammed river east of the Mississippi – 330 miles
- 13,539 square mile drainage
- Nearly 15 million water users
- Port complex, including Philadelphia, Camden and Wilmington, is the largest freshwater port in the world
- Three mainstem reaches included in National Wild and Scenic River System
- World class trout fishery in the tailwaters of the NYC reservoirs
- Tremendous economic significance for the region.



DRBC General Powers:

- Coordination
- Planning
- Regulation
- Management
- Development



DRBC Functional Responsibilities

- Water Supply
- Water Quality
- Flood Protection
- Watershed Management
- Recreation

Water Supply

- Flow Management/Drought Operations
- Groundwater Protected Area
- Conservation
- Maintain/Utilize Water Use Data

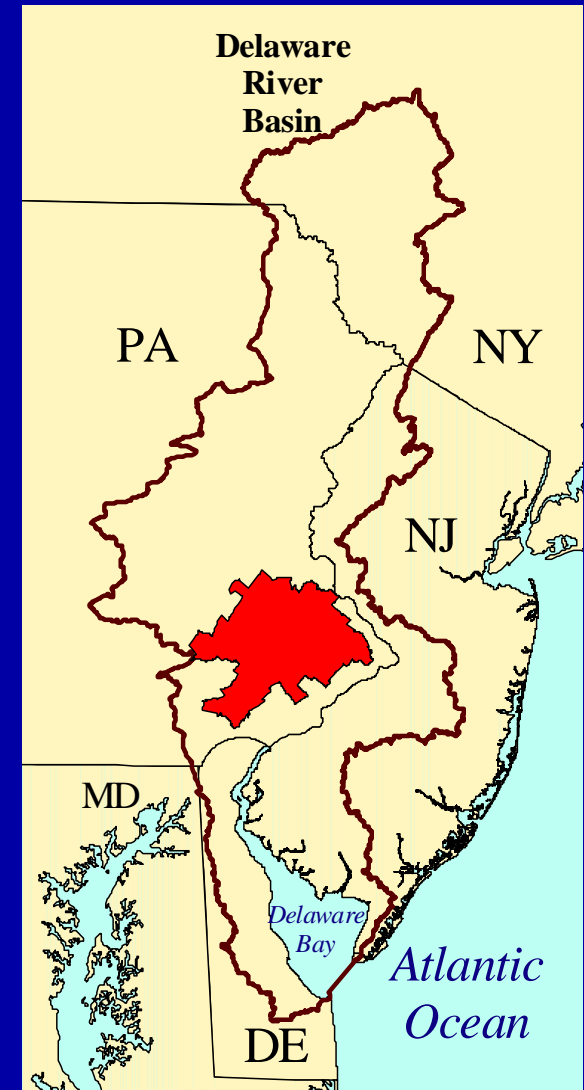
USGS Studies Provide:

- Water Supply Planning
 - Estimates of water supply availability from surface waters, and shallow and deep aquifers
 - Evaluation of sustainable yield from surface and ground waters
 - Evaluate water supply availability basin-wide with integrated GIS coverages to aid us in management decisions
 - Estimate/predict potential shortfalls in meeting demand/ Identify potential critical areas

Southeastern Pennsylvania Ground Water Protected Area

Established in 1980

- Initiated due to the substantial increase in use of ground water resources in southeastern Pa. in recent decades; and due to more frequent interference and conflicts among users of the same ground water resource
- Direct example of Pa Legislation's "Critical Water Planning Area" component.



USGS Open File Report 98-571

1. Estimates of ground water availability were made for watersheds in the Southeastern Ground Water Protected Area.
2. Availability determined using based base flow statistics for representative geology for SEPA
3. Numerical withdrawal limits by watershed were enacted.

Southeastern Pennsylvania Ground Water Protected Area

U.S. Geological Survey Open File report 98-571



November 1998

25-year Baseflow Recurrence Intervals for Difference Geologic Units in SE Pennsylvania

Geologic
Formation

Discharge Mgal/d per sm.
25-year- recurrence
interval

Discharge Mgal/d per
sm. 75% of 25-year-
recurrence interval

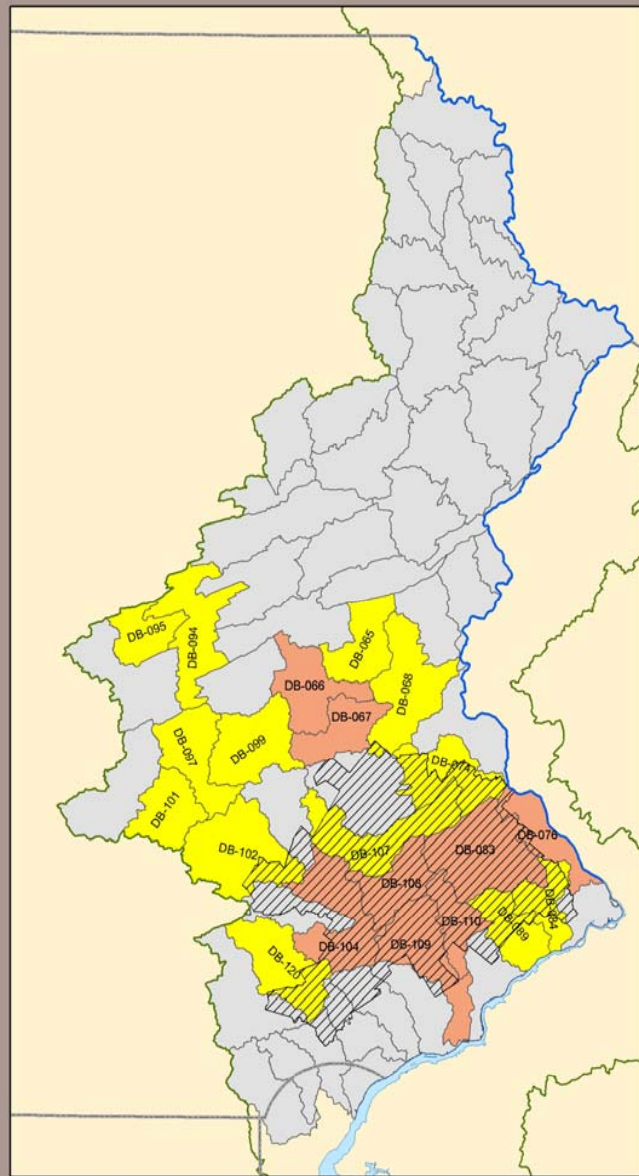
Brunswick Group Lockatong Formation	0.154	0.115
Stockton Formation	0.189	0.142
Carbonate Rocks	0.289	0.217
Crystalline Rocks	0.299	0.224

Conclusions:

- We now have a tool to evaluate ground water withdrawals on a watershed level.
- Withdrawal data can be updated and be used to monitor water resources over time and evaluate the effectiveness of DRBC policies,
- Allows for the identification of subbasins which may experience water supply problems in the future.
- Scalable to any size watershed.

Current USGS Study

- USGS study pursued based on DRBC's need to update it's Comprehensive Plan
- "...to address the entire spectrum of water-related issues including surface and ground water supply, water quality, regulation and maintenance of in-stream flows,..."
- The main goal is to be able to develop policy which significantly relies on sound technical data, such as the assessment of ground water availability in the basin.



11% - 25 %

Map ID	Description
DB-094	Little Schuylkill River
DB-065	Lower Lehigh River above Little Lehigh Creek
DB-095	Upper Schuylkill River above Pottsville
DB-068	Lower Lehigh River below Little Lehigh Creek
DB-099	Maiden Creek below Sanoomy Creek
DB-097	Tribs to Middle Schuylkill River upper
DB-074	Tobichon Cr
DB-101	Lower Tulpehocken Creek below Blue Marsh Reservoir
DB-107	Perkiomen Creek above Northeast Branch
DB-102	Tribs to Middle Schuylkill River lower
DB-084	Neshaminy Creek below Little Neshaminy Creek
DB-089	Poquessing Creek & Pennypack Creek (tribs to Delaware River)
DB-120	East Branch Brandywine Creek

26% - 50 %

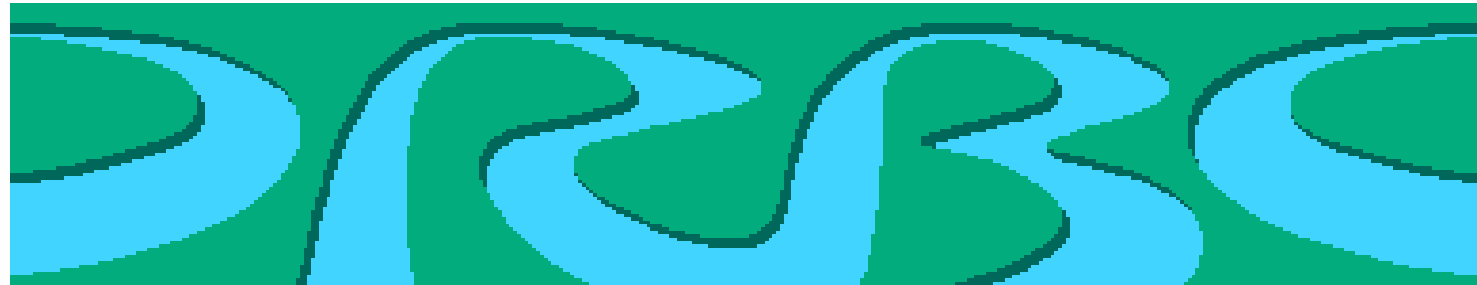
Map ID	Description
DB-066	Jordan Creek
DB-067	Little Lehigh Creek
DB-076	Geddes Run, Hickory, Pannasassaing, Aquetong, Fiske, Jericho, Houghs, Dyers, Buck Creeks, Hollow Run
DB-083	Neshaminy Creek above Little Neshaminy Creek
DB-104	Lower Schuylkill & tribs above Skippack Creek
DB-108	Perkiomen Creek above Northeast Branch
DB-109	Lower Schuylkill River & tribs below Skippack Creek
DB-110	Wissahickon Creek
DB-125	Christina River & tribs to Delaware River

SE Pennsylvania Ground Water Protected Area



0% - 10% 11% - 25% 26% - 50% 51% - 75% 76% - 100%

1. Expanded approach to the Entire Delaware River Basin
2. Cooperative agreement with the NJ and PA USGS offices
3. Preliminary results for PA



Delaware River Basin Commission

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