State Water Plan Update
Upper / Middle Susquehanna Regional Committee Meeting

October 24, 2024
9:00 a.m. – 11:00 a.m.
Virtual Microsoft Teams Meeting

Committee Members in Attendance:

Stephen Barondeau	Shannon Rossman
Andrew Gavin	Robert Shannon
Andy Gutshall	Doug Weikel
Tom Herbert	Wendy Walter
Russell James	Jennifer Whisner
Rhonda Manning	

Others in Attendance:

James Horton – DEP	Bob Whitmore - Strategic Consulting Partners
Dave Jostenski – DEP	Jenny Gallagher Blom – Strategic Consulting Partners

Visitors:
Graham Markowitz – SRBC

Welcome
James Horton, DEP, welcomed everyone to the meeting, explained the meeting was being recorded, provided helpful hints on the use of technology, and invited all attendees to introduce themselves.

Chair
Doug Weikel volunteered to serve as Chair for the meeting. A formal election could not be held with a lack of quorum. Members of the Committee introduced themselves through the Team platform.

Meeting Summary
The summary of the April 24, 2024, meeting was reviewed by the committee members. Rhonda Manning attended by phone but was not listed as being an attendee, and the minutes will be corrected to include Rhonda in the April meeting summary. No official action was taken with a lack of a quorum of members.

Public Comment

Chair Weikel opened the meeting for public comment. An opportunity to express comments verbally or in the chat box was offered. There was no public comment.

By-Laws

James (DEP staff) reviewed Article XII of the Great Lakes Committee By-Laws. The current by-laws state the following about amending the by-laws: "the By-Laws may be amended at any meeting of the Regional Committee by two-thirds vote of the full Regional Committee membership (15 voting members)." James said internal review of the by-laws by legal counsel is asking this article to be corrected to state:

"The By-Laws may be amended at any meeting of the Regional Committee by a simple majority vote of the full Regional Committee membership provided that written notice of such change has been sent via certified mail with a return receipt to each member at least two weeks prior to the meeting."

This change will align the by-laws with Act 220. The legal opinion is this is a change to comply with the Act and does not need to be voted on by the committee as a by-law change.

A Shannon Rossman motion, seconded by Andy Gavin, was made to confirm a consensus vote approval for the By-Laws correction to comply with Act 220. This motion was approved by all present.

DEP Update

James Horton, DEP, provided an overview presentation of the state water planning process and the direction forward.

DEP Team

- Sue Weaver Environmental Program Manager, Interstate Water Resources Management
- James Horton – Environmental Group Manager, Water Use and Planning Section
- David Jostenski – Water Program Specialist

Regional Committee Objectives

2025 – Draft regional content
2026 Q1 – Combined Public Hearing and Meeting
2026 Q3 – Send to Statewide Committee for Approval
2027 – Next update to the State Water Plan

Five Year Plan

2023 – Outreach/Recruitment/Review
2024 – Implementation and Analysis
2025 – Workgroups and drafting content
2026 – Editing/Compiling public content

Outreach

Upcoming tools:

Clearing house webpage with key plan details, partner links, and example projects.

Analysis

- IWRM work group planning.

CARPS

- Back Creek, Ohio Region – In review phase with DEP
- Laurel Hill Creek CARP, Ohio Region – In review phase with DEP
- Marsh and Rock Creeks' CARP, Potomac Region – In review phase with DEP

Committee Health

Proposed committee members are currently in the review and approval process, and applications have been sent to the Governor's office.

Roles to Fill in Upper / Middle Susquehanna Regional Committee

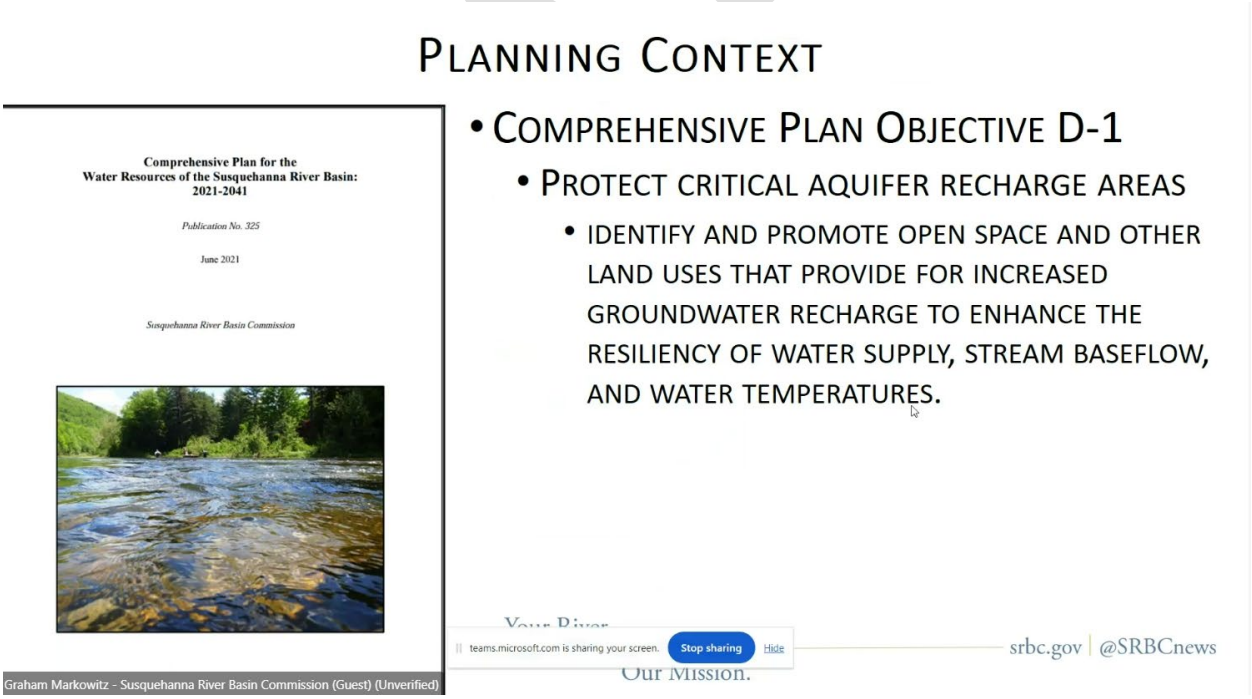
- County Planner
- Horticulture
- Agriculture
- Industrial, Commercial, Energy Development and Production
- Environment and Conservation
- Local Government

New Members Added to Upper / Middle Susquehanna Committee

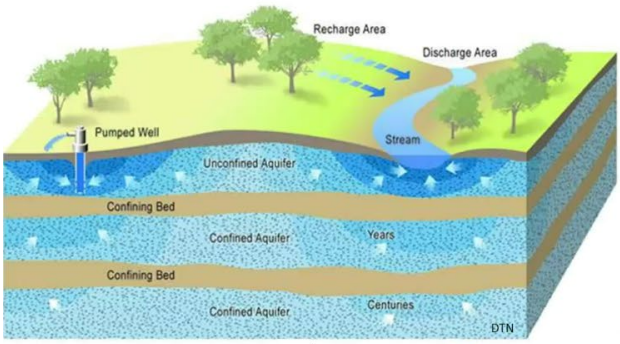
- Doug Johnson, Local Government
- Thomas Herbert – County Conservation District Director

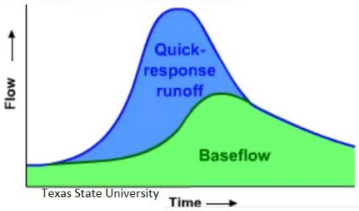
Recruiting New Members Process

Presentation by Graham Markowitz, Hydrologist with Susquehanna River Basin Commission



Definitions





- <u>Recharge:</u> *the addition of water from the land surface to underground water-bearing zones*
  - Typically from precipitation but could also be artificial
- <u>Baseflow:</u> *non-runoff portion of streamflow sustained by groundwater*
  - Often used as an approximation of recharge
  - Can be measured / estimated using hydrograph separation techniques

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Why is Preserving Recharge/Baseflow Important?

- Increased recharge = increased baseflow
  - Water quality benefits
    - more infiltration/filtering and less runoff, erosion, sediment (phosphorus)
- Increased baseflow = increased cold-water contributions from groundwater/springs
  - Provides thermal refuge and sustained habitat (wetted area & depth) for cold-water species during hot/dry periods
- Increased drought resiliency
  - Ensures water is available in aquifers and streams for water supply

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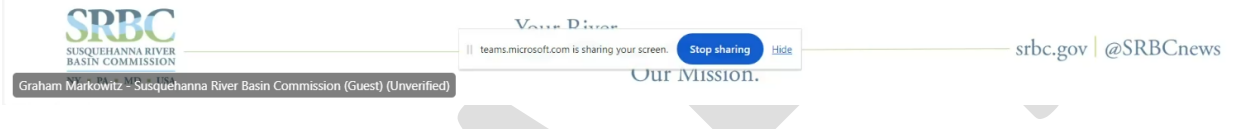
Graham Markowitz - Susquehanna River Basin Commission (Guest) (Unverified)

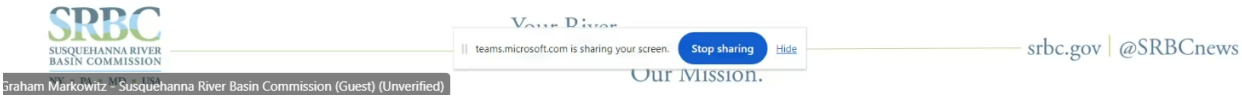
What influences Groundwater Recharge?

- Excluding precipitation and evapotranspiration, recharge is governed primarily by land cover, soil characteristics, and subsurface geologic features
- Diverse geology, topography, and land uses in the Susquehanna Basin
  - Contributes to considerable variations in local recharge rates
  - 25.6 to 2.5 in/yr (30 year average)
- Increased impervious cover and removal of forest cover disrupts the natural infiltration capacity



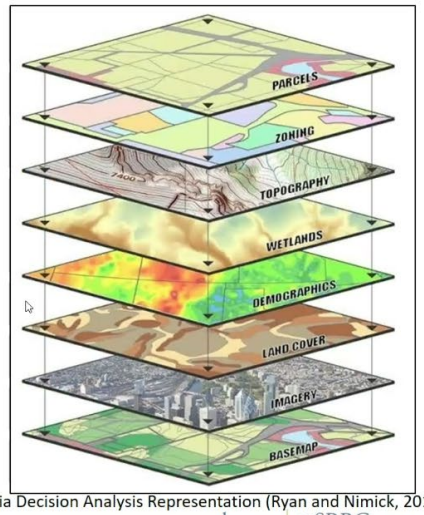
Study Goal(s)

- Develop a Geographic Information Systems (GIS) framework to identify areas of greater and lesser recharge potential throughout the basin
- Use the framework to delineate **Critical Aquifer Recharge Areas**
  - I.e. land surface areas that are responsible for a large fraction of recharge
    - by virtue of high aquifer permeability, soil characteristics, vegetative cover, and location with respect to discharge areas and/or withdrawals, topographic setting, or a combination of these



GIS Framework:
Multi-Criteria Decision Analysis

- Data sources can be combined through standardization and weighting-assignments to produce a meaningful index
- Each raster's cell/pixel value is multiplied by the weight or "percent influence"
- Values are summed for each overlapping cell/pixel for a composite output/index
  - i.e. "recharge potential"



Multi-Criteria Decision Analysis Representation (Ryan and Nimick, 2019)

Variables Used in Assessing Recharge Potential

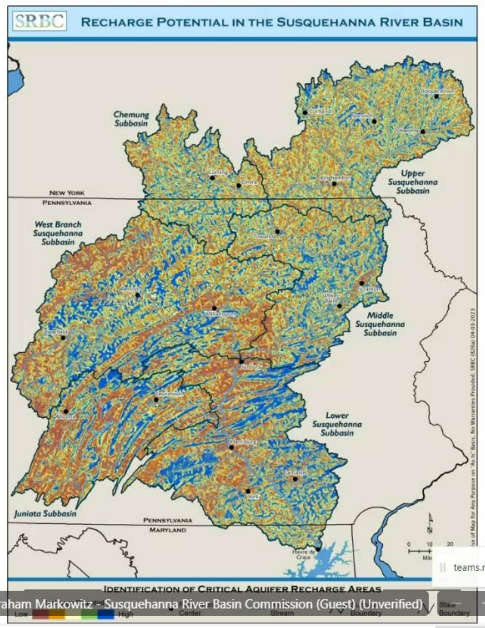
Informed by physical basin characteristics used in regional regression equations to predict baseflow (recharge) in ungaged locations

Requirements:

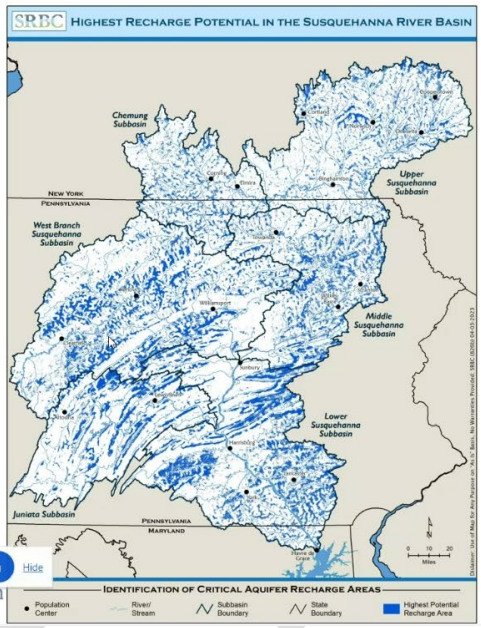
- Geospatial coverage for the entire basin
- Data accessible without site visit, or proprietary information
- Consistent spatial scale (30x30 meters) fine enough to identify discrete areas

First-Level Factors	Weight	Second-Level Factors	Weight	Data Source
Land Cover / Terrain	40	Impervious Area	25	USGS (2019) National Land Cover Dataset
		Land Surface Slope	15	USDA NRCS SSURGO Database
Shallow-Subsurface Geology	20	Percent Sand	15	USDA NRCS SSURGO Database
		Percent Clay	2.5	USDA NRCS SSURGO Database
		Depth to Bedrock	2.5	USDA NRCS SSURGO Database
Structural / Bedrock Geology	40	Drainage Density	25	SRBC calculated from USGS (2019) National Hydrology Dataset (NHD)
		Karst Density	10	DCNR-PGS (2003) Density of Mapped Karst Features
			5	Isachsen and McKendree (1977); Berg and others (1980)

- Each pixel has a recharge potential index value ranging from 100 (low) to 500 (high)

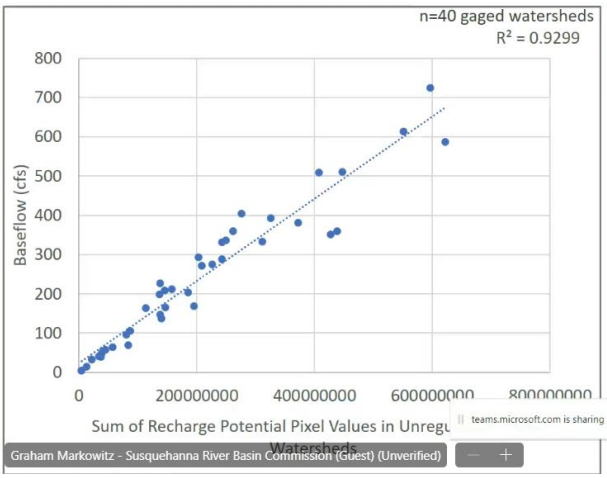


- Highest recharge potential described by upper 20% of pixel values.

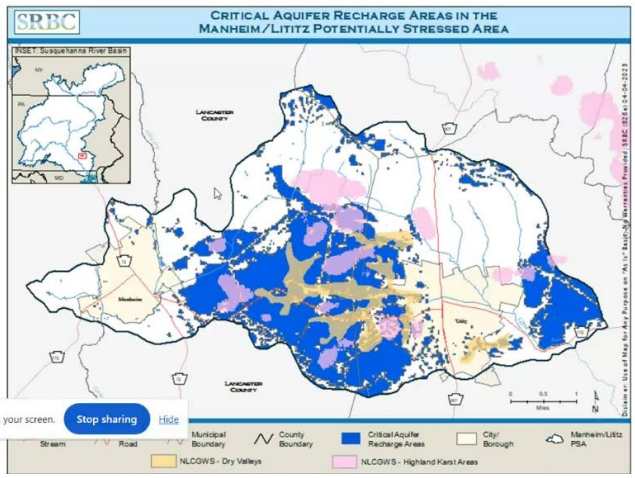


Desktop Verification

- The sum of all "recharge potential" pixels within a watershed can predict average annual baseflow (recharge) within 19.7% (average standard error)

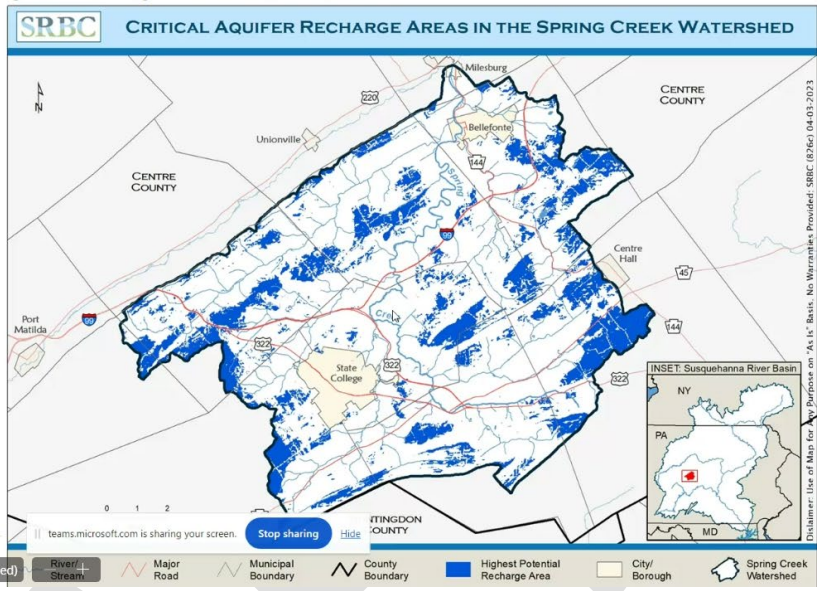


- Comparison of High Recharge Potential Areas and Critical Aquifer Recharge Areas Identified in Northern Lancaster Groundwater Study (Edwards and Pody, 2005)



Local Applications: Critical Aquifer Recharge Area (CARA) Delineation

- Resampling in smaller user-defined areas where water supply has become more-limited amid development and increasing impervious cover
- Results are relative to all areas/characteristics within boundary
- Identify highest recharge potential in areas with otherwise limited, or increased recharge potential

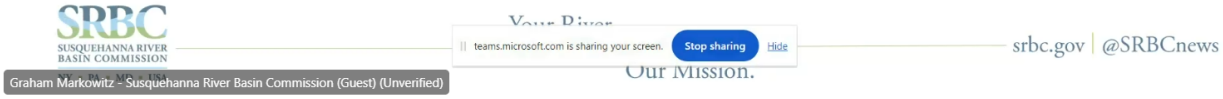


Local Applications: Rock Lititz, Lancaster County

- Leveraging/enhancing dry stream valleys for stormwater infiltration
  - Alternative BMP for NPDES permitting - Stormwater Discharges Associated with Construction

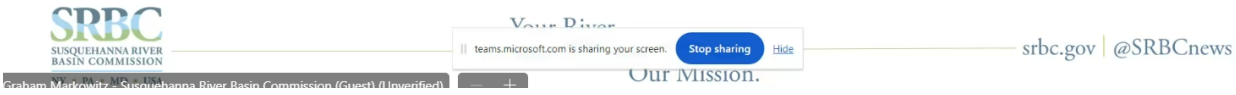
Potential Applications/Intended Uses

- Agricultural and forested land preservation activities
- Aquifer/stormwater recharge enhancement projects
- Identifying sustainable groundwater sources and/or avoiding potentially over-utilized areas with limited water availability
- Evaluation criteria for SRBC's Consumptive Use Mitigation Grant Program



Product Availability

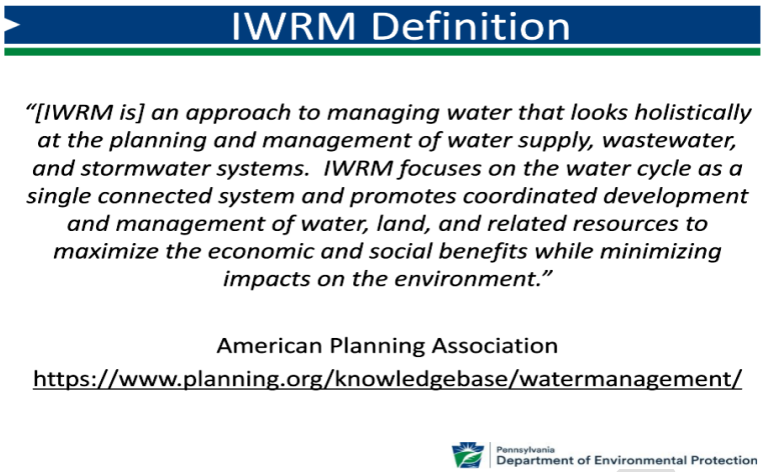
- Datasets available for download at the Pennsylvania Spatial Data Access (PASDA) geospatial data portal
  - Groundwater Recharge Potential
  - Highest Groundwater Recharge Potential Areas
- Additional information available on the Commission's website
  - Preview layers on the Susquehanna Atlas
- If a local assessment of recharge potential in any region, county, watershed, or other scale is desired, a request can be made through the Commission's website



IWRM Workgroup Discussion

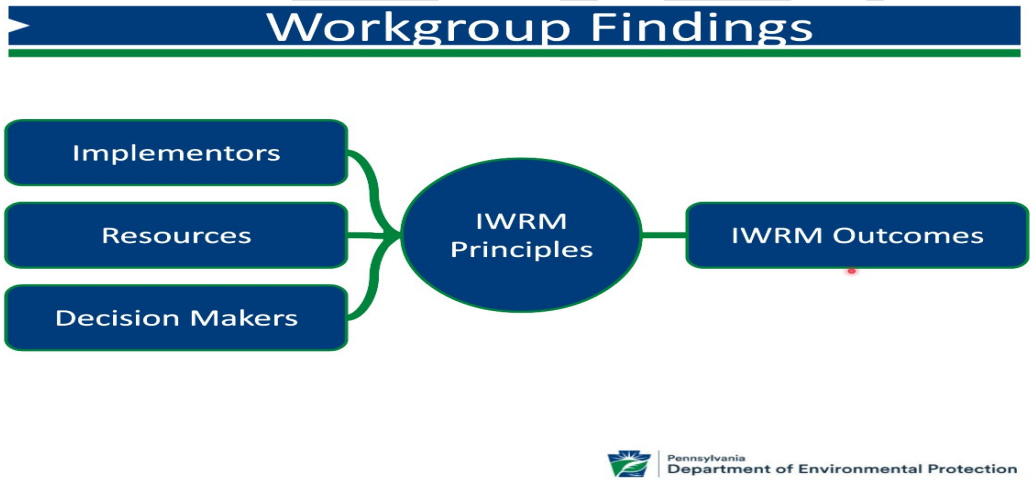
- A workgroup to discuss IWRM was created by volunteers of the regional committees and the statewide committee.
- The workgroup held three meetings –
    - May – What are issues to be addressed with IWRM?
    - June – Who is already implementing IWRM?
    - July – What roles do different stakeholders play in IWRM?
- The workgroup decided that IWRM is a collection of principles.

- The IWRM definition used by the workgroup was:



Findings

- A holistic approach is best to achieve results.
- Collaboration between stakeholders is important.
- Framework for IWRM work – IWRM Principles and IWRM Outcomes:
    - Implementors – people working on the ground and implementing ideas.
    - Resources – to provide background information and data for decision making.
    - Decision makers – planning and coordination.



Suggested Actions

- Pre-application meetings.
- Connect local stakeholders with resources and tools.
- Catalogue existing efforts and compile a body of knowledge that others can replicate. (Clearinghouse of information and links on a webpage)

Items in the chat

None

Next Steps

Next meeting – The next Upper / Middle Susquehanna Regional Committee meeting will be held in October 2025.

The meeting was adjourned at 10:59 by the Acting Chair.