

Local Perspectives on Watershed Modeling

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Research Question



How does the Bay Watershed Model influence local planning



Partners: Chesapeake Bay Program (CBP) and Chesapeake Bay Commission network



Methodology: informational interviews

How Does the Model Impact Local Implementation?



Complicating Factors:

- Differences in state law
- Type of best management practice (BMP) implemented



Local Perceptions of Model Based Planning

“The model does not accurately reflect the conditions on the ground”

Scale

BMP dropout
and verification

Moving goal
posts

BMP credit and
funding decisions



Therefore: “we are doing better/worse than the model indicates”

Common Sentiments from Interviews

Communication:

significant resources are spent defining the problem scientifically, while not enough emphasis is placed on practical outreach

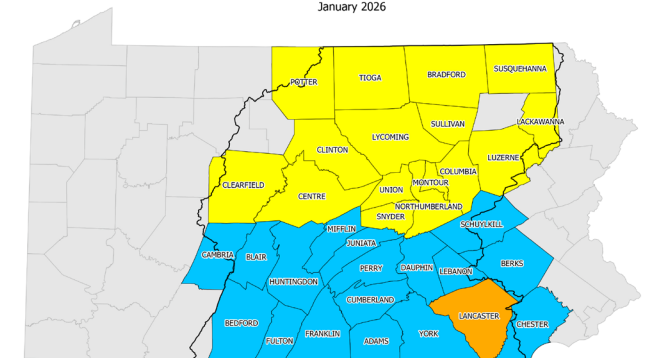
Water quality monitoring:
some localities have good water quality monitoring data and are frustrated that local data is not more heavily prioritized in planning

Communication Between State and Local Planners

- ▶ Increased communication between state and local planners could help:
 - ▶ Set achievable goals
 - ▶ Acknowledge limitations
 - ▶ Align state and local priorities
 - ▶ Identify legislative and budgetary needs for policy makers
 - ▶ Ensure adaptive management throughout the life of the Watershed Implementation Plan
- ▶ Examples of effective communication:
 - ▶ PA's County Action Plans, VA's Chesapeake Bay Advisory Group

DEP Countywide Action Plan (CAP)
Project Advisors

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Water Quality Monitoring

- ▶ Most respondents expressed a desire to increase the use of water quality monitoring in local planning
 - ▶ However, monitoring data does currently inform the model
- ▶ Limitations of water quality monitoring
 - ▶ Snapshot of data at one point in time in one body of water
 - ▶ Needs years of data to identify trends
 - ▶ May include too much local context unrelated to nitrogen, phosphorous, or sediment reductions from a BMP
 - ▶ Requires a lot of resources
- ▶ Predictive planning requires a predictive model, not a single data point
- ▶ The model standardizes implementation across the watershed, monitoring is not as universal

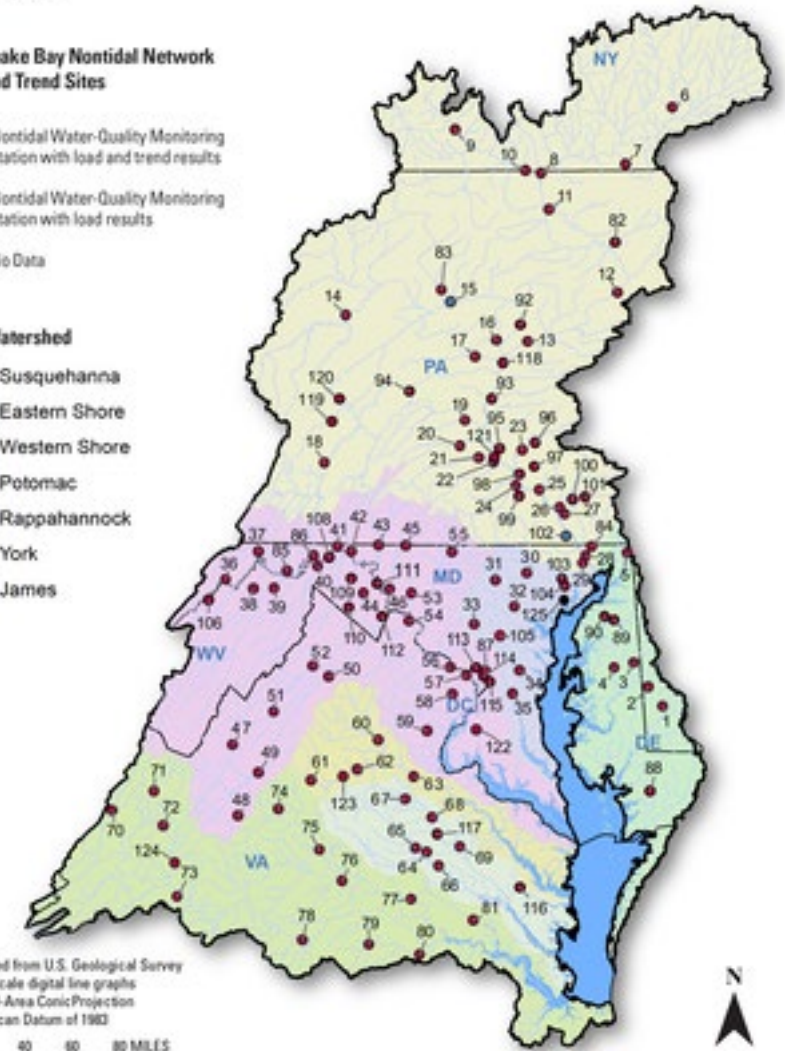
EXPLANATION

Chesapeake Bay Nontidal Network Load and Trend Sites

- Nontidal Water-Quality Monitoring station with load and trend results
- Nontidal Water-Quality Monitoring station with load results
- No Data

Major Watershed

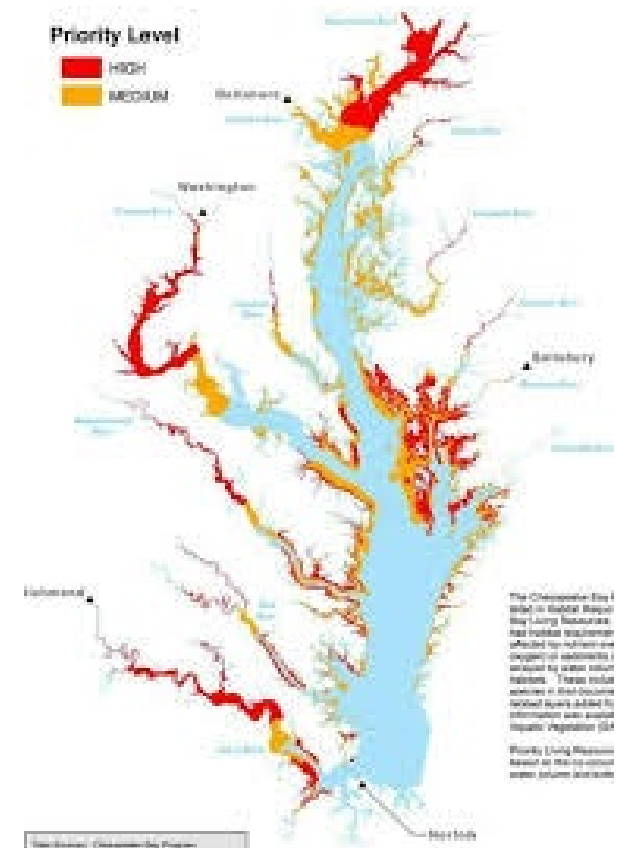
- Susquehanna
- Eastern Shore
- Western Shore
- Potomac
- Rappahannock
- York
- James



Base modified from U.S. Geological Survey
1:2,000,000-scale digital line graphs
Albers Equal-Area Conic Projection
North American Datum of 1983
0 20 40 60 80 MILES

Tiering Implementation

- ▶ Conversations in the partnership should include using tiered implementation as a strategy to address local concerns
- ▶ CBP's Scientific and Technical Advisory Committees' Comprehensive Evaluation of Systems Report (CESR) Report:
 - ▶ tiering implementation will require use of smaller scale models and data, “since larger scale models may not accurately capture uncertainty at small scales”
- ▶ Targeting implementation in specific areas with more benefits for living resources acknowledges local context
- ▶ Localities are concerned about feeling targeted
- ▶ Overwhelming majority of respondents expressed excitement about tiered implementation



Takeaways

- ▶ The model is the culmination of the best available science we can use for predictive planning
- ▶ When drafting and implementing new or updated plans, prioritize consistent communication between local implementors and state planners
- ▶ Water quality monitoring is a tool that can be used to help inform planning, but is not replacement for modeling and it has its own limitations
- ▶ Tiered implementation could provide an effective framework to use monitoring data

Questions?