

MONITORING (GROUND) WATER RESOURCES AND AVAILABILITY

Planning for Sustainable Future
Water Supplies South
of the C&D Canal

OVERVIEW

- Priority Issues And Problems
 - Water quantity and water quality
 - List of tasks for workgroup
- Current Status
- Monitoring Plans To Support Future Quantitative Supply Assessments

PRIORITY ISSUES AND PROBLEMS:

THE TWO Qs

QUANTITY

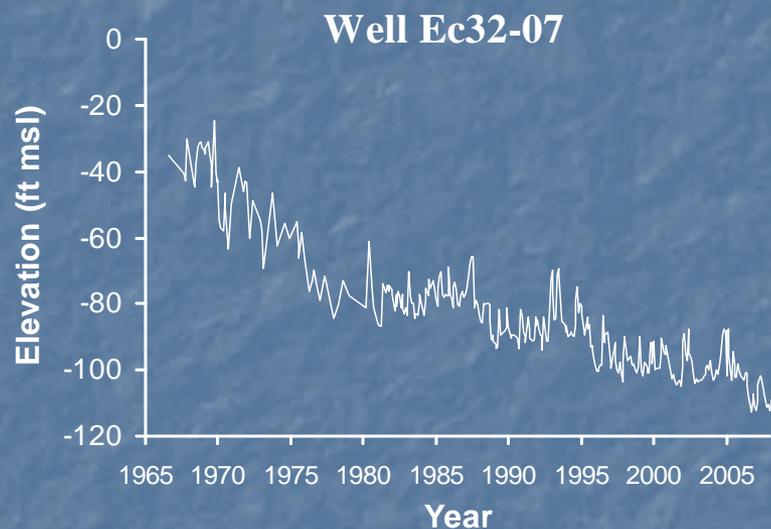
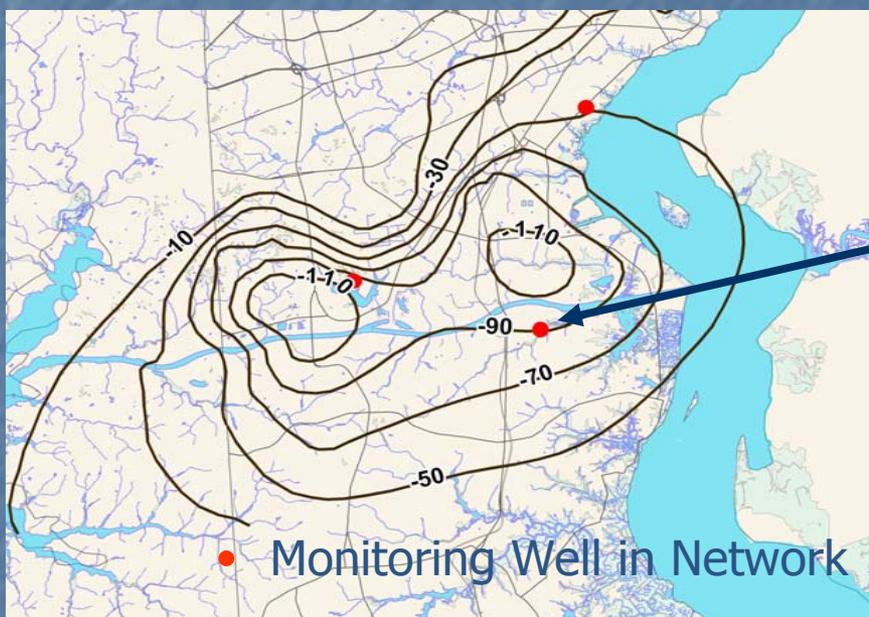
- Poorly constrained estimates of ground-water availability
- Streamflow depletion
- Wastewater, stormwater, and ASR
- Declining ground-water levels in confined aquifers

QUALITY

- Widespread ground-water contamination
- Impacts of ground-water contamination on surface water
- Reuse - Wastewater, stormwater, and ASR

available \neq sustainable

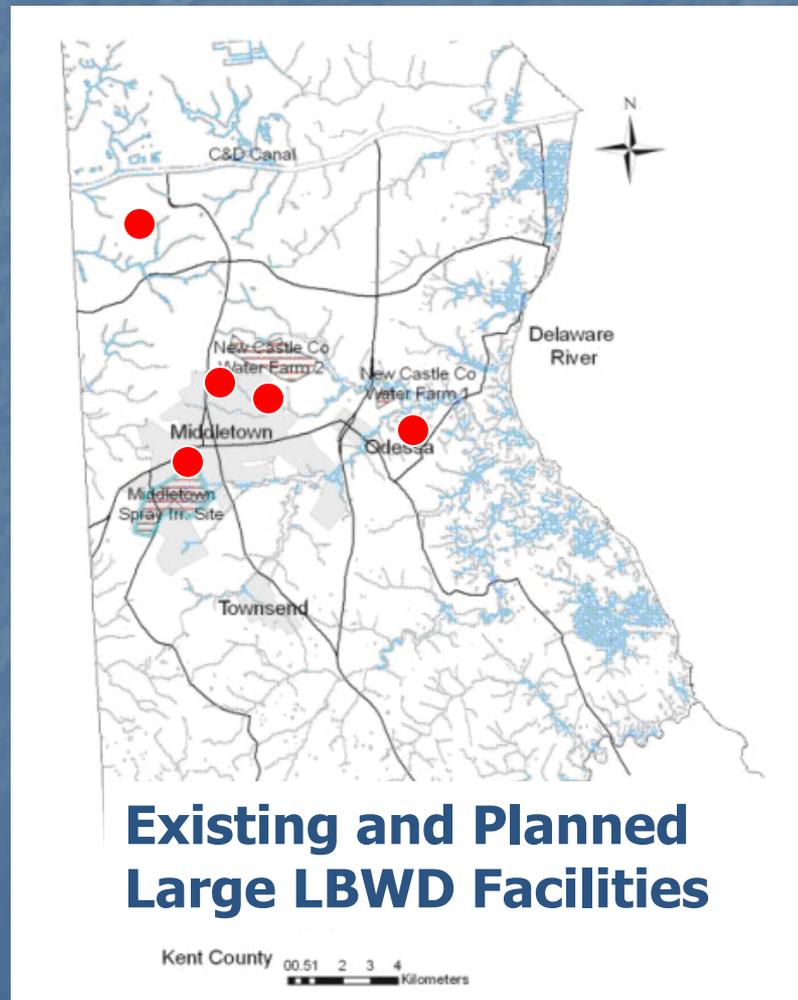
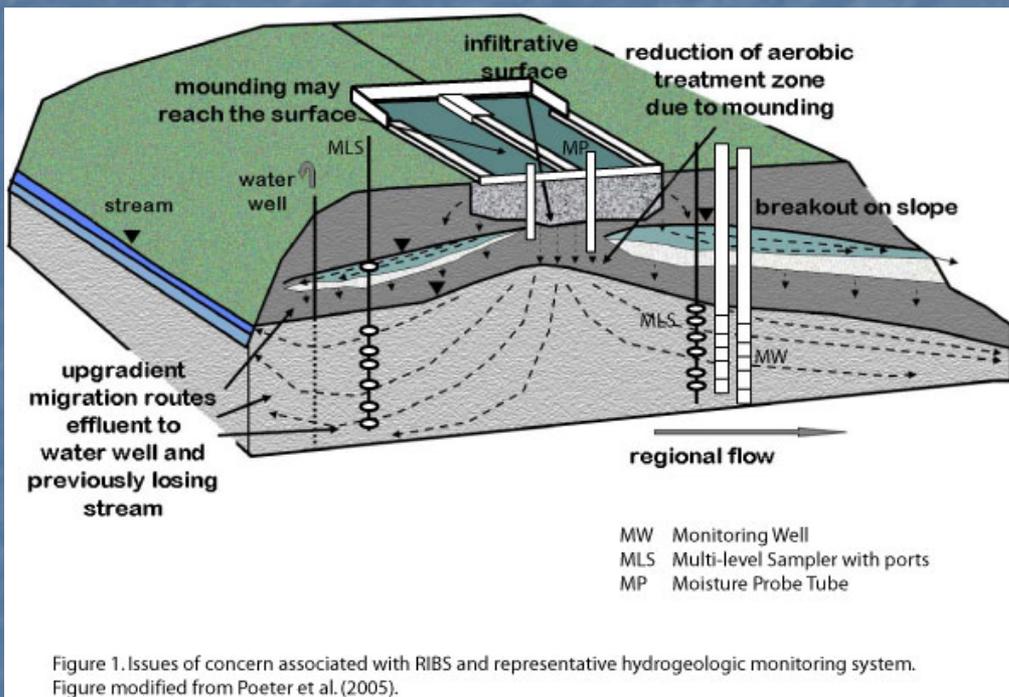
MOVING TO ADDRESS PRIORITY ISSUES AND PROBLEMS: Quantity



Measured water level elevations

Predicted water-level elevation (ft above msl) in Deeper Potomac Aquifer with existing allocations (numerical flow model)

MOVING TO ADDRESS PRIORITY ISSUES AND PROBLEMS: Quality & Reuse



Land-Based Wastewater Disposal Facility (LBWD)

NEEDS FOR MODERN WATER RESOURCES PLANNING I

Data and Tools

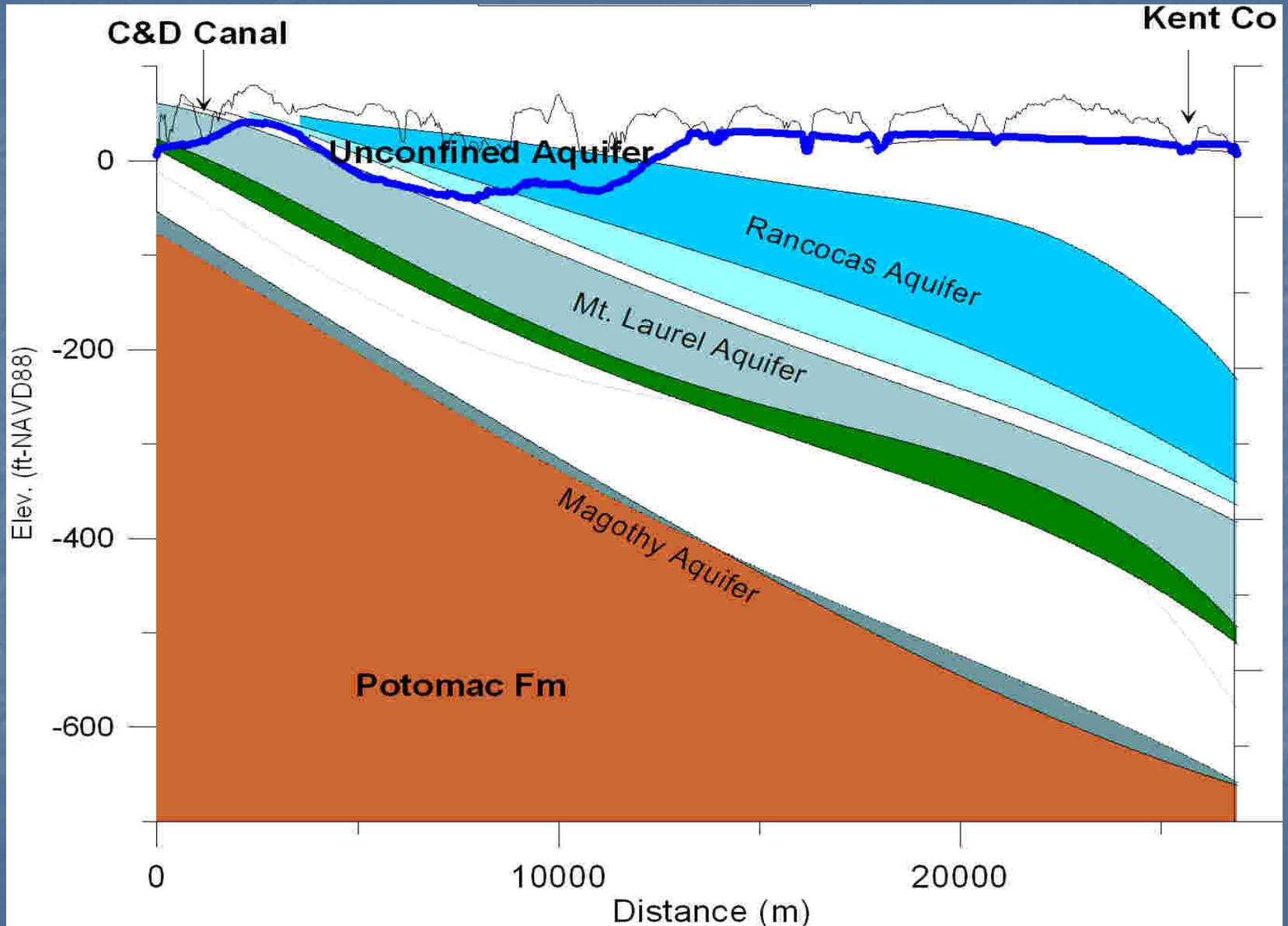
- Basic aquifer measurements – water levels, hydraulic properties, flow, and quality
- Improved access to pumping records
- Better tools (models) to more effectively manage and plan
- 10 year life cycle of model tools

NEEDS FOR MODERN WATER RESOURCES PLANNING II

Tasks

- Exploration of aquifer characteristics
- Assessment of ground water levels and stream discharge
- Characterize water use at appropriate time scales
- Linkage to surface water issues
- Phased approach for flexibility

N-S CROSS SECTION



SPECIFIC TARGETS

- Simple enhancements to monitoring network
- Drilling new monitoring wells in shallow aquifers (Magothy, Mt. Laurel, Rancocas, Columbia)
- Drilling new monitoring wells in deeper aquifers in Potomac Formation (2 areas)



Cost

Information

ADDITION OF EXISTING WELLS TO MONITORING NETWORK

- Good potential for addition of existing wells for the shallowest Potomac zone (✓)
- Poor potential for addition of existing wells in Rancocas and Mt Laurel aquifers in key areas (X)
- Poor potential for addition of existing wells in Magothy and deeper Potomac zones (X)
- Lowest cost to implement, but least impact on ability to assess overall picture (!)

SHALLOW AQUIFER* STUDY COMPONENTS

- Aquifer mapping and characterization (first cut done, additional work identified)
- Expansion of water level monitoring efforts (underway, additional work identified)
- Test drilling and multi-level wells
 - lithologic characterization of geologic units (new)
 - characterization of hydraulic and chemical properties of aquifers (new)
- Surface water monitoring (new)

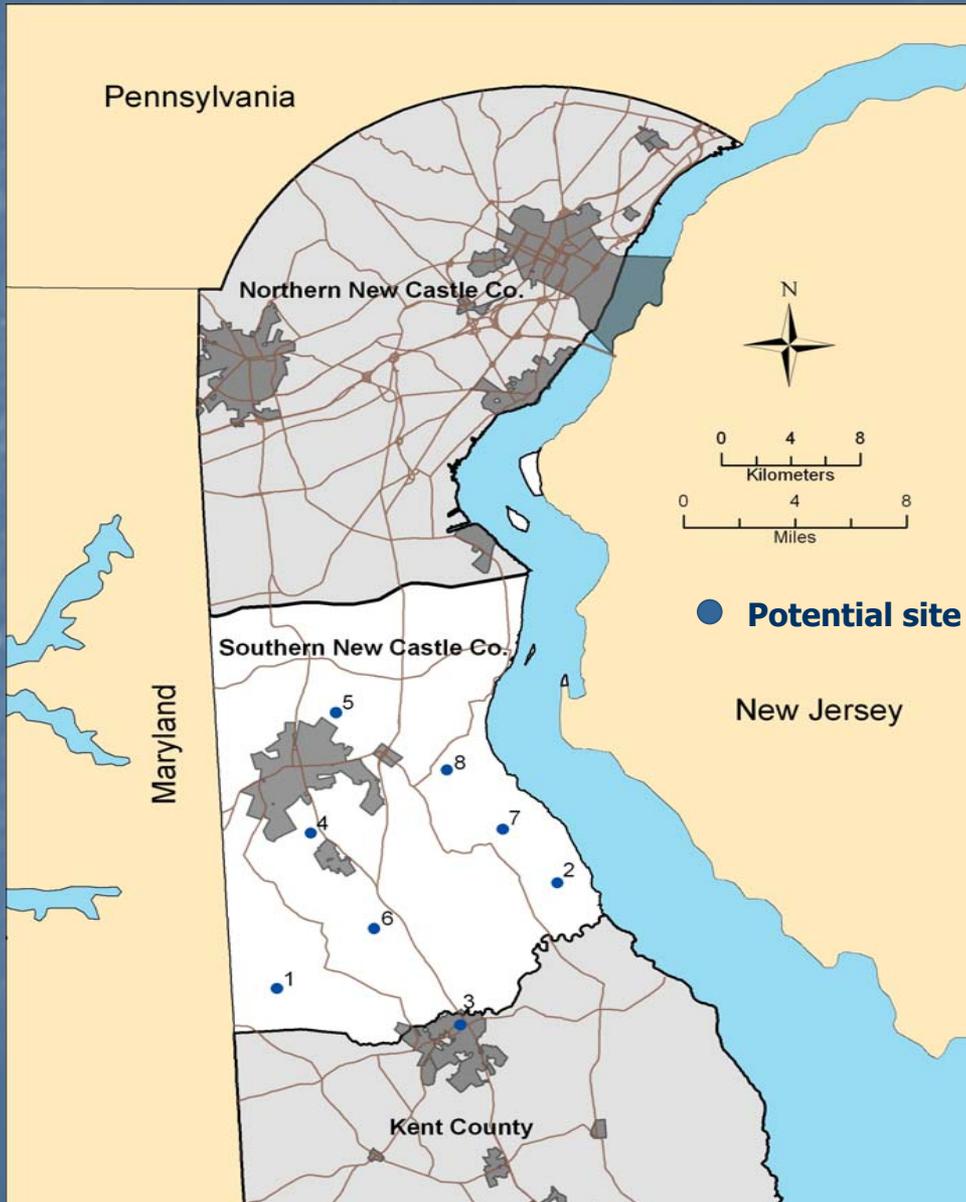
* Depths < 750 ft

DEEP AQUIFER* STUDY COMPONENTS

- Test drilling and lithologic characterization of deeper zones of Potomac Formation
- Multi-level wells and characterization of hydraulic and chemical properties of aquifers
- We need to find the salty water (>10,000 mg/L TDS)

* Maximum depths > 2500 ft

PROPOSED ACTIONS



New Wells:

8 sites for shallow aquifers

4 sites for deep aquifers

multiple wells at each site

- Aquifer characterization
- Basic aquifer measurements – water levels, hydraulic properties, flow, and quality

Rx for next steps

- Conduct systematic and proactive assessment
- Work from shallow to deep
- Address all pieces of the water budget
 - Improve water use data system
 - Monitor surface water quantity
 - Cross state issues
- Recognize time constraints
- Promote the need for systematic and proactive assessment