

## Water and Wastewater Utilities: Impacts on Source Water Protection

Kathy Hale, New Jersey Water Supply Authority  
khale@raritanbasin.org

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## New Jersey Water Supply Authority

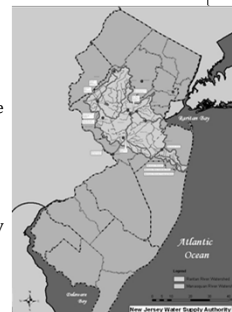
Independent state authority operating state owned water supply facilities:

- Spruce Run Reservoir - natural stream flow - 11BG
- Round Valley Reservoir - pumped storage - 55BG
- Delaware & Raritan Canal - 100MG/day

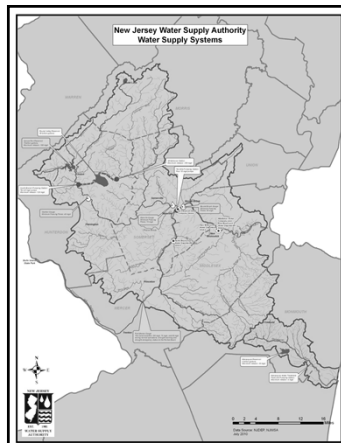
Delaware & Raritan System serves 1.8+ million people in central New Jersey

- Manasquan Reservoir - pumped storage - 4BG

Manasquan System serves 300,000 people in Monmouth County



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- Define source water and source water protection
- Threats to source water
- Benefits of source water protection
- How do we protect source water

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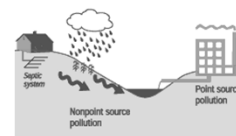
## Source Water

Water from rivers, streams, reservoirs and aquifers that is treated and used for drinking water purposes



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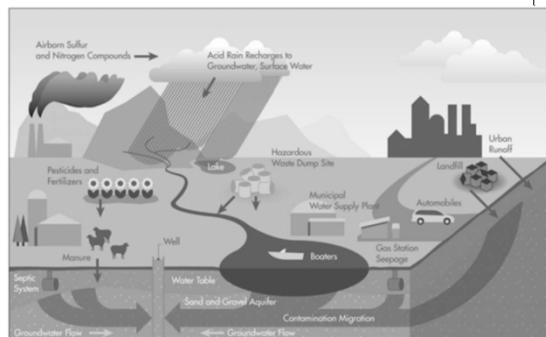
## Point Sources vs. Nonpoint Sources



- Point source: can be traced to a specific location, such as a pipe, ditch, channel, container or vessel
  - Industrial discharges
  - Wastewater discharges
- Nonpoint source: enter water bodies from many diffuse sources when stormwater runoff picks up pollutants and carries them into water bodies
  - Agricultural runoff
  - Urban runoff

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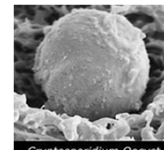
## Threats to source water



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## Potential contaminants

- Nutrients
- Sediment
- Pathogens
- Pesticides
- Trash/litter
- VOCs
- Radionuclides
- Disinfection byproducts
- Petroleum products



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## Source Water Protection

- Provide clean, safe water and protect public health
- Reduction of threats to drinking water quality and quantity
- Multiple barrier approach
- Prevent contamination at the drinking water source
- Minimize treatment costs



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## Source Water Protection

- Source water assessment
  - Delineate source area
  - Inventory known and potential sources of contamination
  - Determine susceptibility to contaminant sources or activities
  - Prioritize risks
  - Identify implementation actions to prevent, reduce, or eliminate risks
- Develop partnerships
- Take action



SWAP Risk Assessment Matrix

	Low	Medium	High	Very High
Critical	Low	Medium	High	Very High
Major	Low	Medium	High	Very High
Minor	Low	Medium	High	Very High
Very Low	Low	Medium	High	Very High
Low	Low	Medium	High	Very High
Medium	Low	Medium	High	Very High
High	Low	Medium	High	Very High
Very High	Low	Medium	High	Very High
Low	Low	Medium	High	Very High
Medium	Low	Medium	High	Very High
High	Low	Medium	High	Very High
Very High	Low	Medium	High	Very High

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Source Water Assessment Report  
NJ American Water Company - Elizabethtown Division

Table E1: Summary of Statewide Susceptibility Ratings for Community Water Systems

Contaminant	High	Medium	Low	Very Low	Not Applicable
Pathogens	1	2	3	4	5
Nutrients	1	2	3	4	5
Pesticides	1	2	3	4	5
VOCs	1	2	3	4	5
Radionuclides	1	2	3	4	5
Other	1	2	3	4	5

Table E2: Summary of Susceptibility Ratings for Drinking Water Sources for NJ American Water Company - Elizabethtown Division

Source	High	Medium	Low	Very Low	Not Applicable
Groundwater	1	2	3	4	5
Surface Water	1	2	3	4	5
Other	1	2	3	4	5

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## Watershed Control Plan: Cryptosporidium



- Partnership with NJ American Water
- Raritan-Millstone Plant
- Recommended actions:
  - Agricultural BMPs
  - Septic system management
  - Wastewater treatment plant upgrades (where appropriate)

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## Stormwater Retrofits



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## River Friendly Programs Partnerships to improve water quality

- Golf Course
- Business
- Farm
- Resident
- Schools

Better management of existing land uses:

- Water Quality Management
- Water Conservation Techniques
- Wildlife and Habitat Enhancement
- Education & Outreach



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## River-Friendly By The Numbers

- sanofi-aventis research facility reduced irrigation by 33%
- RVCC reduced mowed lawn area by 24%
- NJWSA Spruce Run Administrative Facility established 12 acres of native warm season grasses
- Raritan Headwaters increased no-mow areas by 3.1 acres
- Spooky Brook Golf Course established 30+ acres of no-mow areas
- Green Knoll Golf Course planted 72 native trees & established 31 acres of no-mow areas
- Somerset County golf courses installed wash facilities

RIVER-FRIENDLY  
BUSINESS

**Participation (NJWSA, RHA and TWI participants):**  
Golf Courses ~ 1,800 acres  
Businesses ~ 3,500 acres  
Schools ~ 430 acres  
Total ~ 5700+ acres

**Better  
management of  
existing land uses**

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## Agricultural BMPs

- Raritan Basin Agricultural Cost-Share Program
  - Targeted implementation
  - 24 projects
- Incentivize agricultural practice implementation



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## Restoration Projects

- Fix existing problems
  - Stream bank restoration
  - Riparian corridor improvements
  - Agricultural BMPs
  - Septic system replacements
  - Stormwater retrofit projects



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## Emergency Response Planning

- What if there is a:
  - Spill
  - Hurricane
  - Flood
  - Tornado
  - Power outage
  - Pandemic
  - .....
- Can also include resilience planning



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## Funding

NJWSA:

- \$24/mg dedicated to SWP
  - \$8 for land acquisition
  - \$16 for watershed protection


*Be creative!*

- ✓ NJDEP 319(h) Nonpoint Source Grants/Corporate Business Tax Funding/Watershed restoration grants
- ✓ Municipal stormwater mitigation plans
- ✓ In-kind services – counties & municipalities
- ✓ USDA-NRCS: EQIP, RCPP
- ✓ Farm Service Agency (FSA): CREP, CRP
- ✓ US Fish & Wildlife: Partners for Fish & Wildlife
- ✓ US EPA: 5 Star Grant Program
- ✓ ANJEC municipal grants
- ✓ NOAA
- ✓ Natural resources damages mitigation funds

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## Lessons Learned



- Effective source water protection addresses new & existing development
- Effective implementation requires detailed planning
- Effective projects require partnerships
- Utilize all your contacts/networks
- Be patient
- Adapt projects as needed
- Don't give up!

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## Questions?

Native grass restoration area,  
NJWSA Administration Facility –  
Spruce Run Reservoir

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