

# New Jersey Pilot

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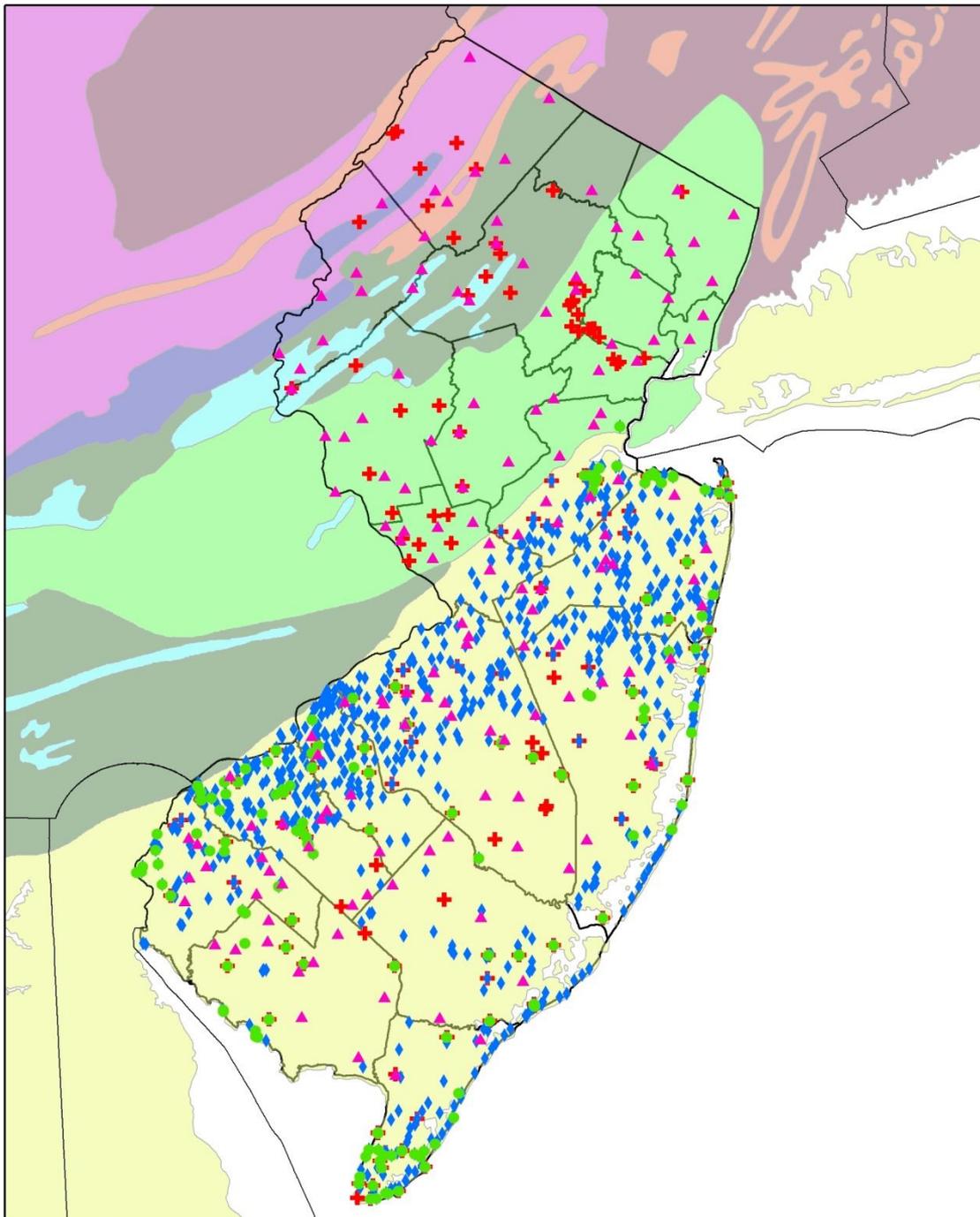
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# New Jersey Ground Water Monitoring Network

As Proposed in the  
New Jersey Pilot Study  
for the National Ground Water  
Monitoring Network



## Monitoring Network

- ▲ Ambient Water Quality Wells
- Chloride Monitoring Wells
- ◆ Synoptic Water Level Wells
- ✚ Water Level Monitoring Wells

## National Aquifers

- Early Mesozoic basin aquifers
- Mississippian aquifers
- New York and New England carbonate-rock aquifers
- Northern Atlantic Coastal Plain aquifer system
- Other rocks
- Pennsylvanian aquifers
- Piedmont and Blue Ridge carbonate-rock aquifers
- Piedmont and Blue Ridge crystalline-rock aquifers
- Valley and Ridge aquifers
- Valley and Ridge carbonate-rock aquifers

# Agencies Involved

- New Jersey Department of Environmental Protection
  - New Jersey Geological and Water Survey
- United States Geological Survey
  - New Jersey Water Science Center

# Network and Basic Stats

Network	Well Type	Sampling Frequency	Total Number of Wells	Goal
Water Level	Trend	Continuous recorders	138	Long-term and seasonal data
Water Level	Surveillance	5-years	844	Provide more spatial detail
AGWQMN	Surveillance	5-years (30 per year)	145	Assess anthropogenic activities on shallow groundwater
Chloride	Surveillance	5-10 years	87	Monitor saltwater intrusion

# Estimated Costs

Network	Annual Cost (2011) (\$)	Spatial Gap (Capital and O&M) (\$)	Temporal Gaps (Capital and O&M) (\$)	Field Practice Gaps (Capital and O&M) (\$)	Data Management Gap (Capital and O&M) (\$)
Water Level-Trend	455,00	9,900	0	6,900	121,00*
Water Level-Surveillance	300,000	0	2,785,300	21,000	
AGWQMN	210,00	92,000	805,000	0	0
Chloride	15,000	10,500	58,400	5,000	

\* Combines cost for both water level networks and chloride network

# Side-Benefits/Unexpected Hurdles

- NJ's ground-water monitoring networks have been designed to address specific goals with numerous benefits to the State.
  - Side benefit: Having a robust network of wells/gages allows for having real data vs. assumed data available near a new site of interest. Example: During allocation permitting, there is a good chance that there is a gage in the watershed of interest to use to get actual low flows, groundwater diversions, depth to groundwater, etc.. Not always documented but happens frequently.
- Benefits of Participation in NGWQMN to NJ:
  - Provide the underlying hydrostratigraphic and hydrogeological baseline data and aquifer properties for shared principal aquifers between States during development of management options of ground-water resources.
  - Opportunity to Assess Networks

# Network Updates – Post Pilot

Network	Update
Water Level – Trend	Added several wells to Early Mesozoic Basin aquifer to fill gaps
Water Level-Surveillance	Completed another round (1980-present); Temporarily turned off display to be more consistent with number of wells in other states.
AGWQMN	Sampling frequency increased to 3-years (50 wells per year) (2014)
Chloride	None
All	Added lithology data to USGS NWIS database so that it is displayed on the portal

# Some of New Jersey's Recommended Framework Updates/Edits

- Trend networks - continuous data spread out through the primary aquifers. Surveillance or synoptic networks should be denser and more detailed.
- Frequency of Sampling – anything more than annually most likely unreasonable for surveillance networks
- Baseline period – 5-year annual baseline turns a surveillance network into a trend network. A long-term baseline has advantages such as ‘averaging out’ effects of dry and wet years.
- NJ recommends potable supply wells be allowed, assuming they follow a defined protocol.
- Better definitions for the classification of wells as targeted or unstressed.
- Allow for designated smaller scale aquifers in the NGWMN and use of local aquifer names.
- Allow for the inclusion of all existing State network wells to ensure the State's ability to utilize historic data and avoid having to operate separate networks (State and NGWMN).

# Benefits/Hurdles Since Pilot Report

- Funding under threat for networks
  - An open-space referendum on the November ballot, if passed, would reprogram Corporate Business Tax money from network funding to open-space acquisition.
    - Historically open-space initiatives receive extremely strong support from NJ voters.
  - Dedicated funding source or increased federal money would be beneficial to keep the networks at current levels.