

New Jersey Pilot

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New Jersey Ground Water Monitoring Network

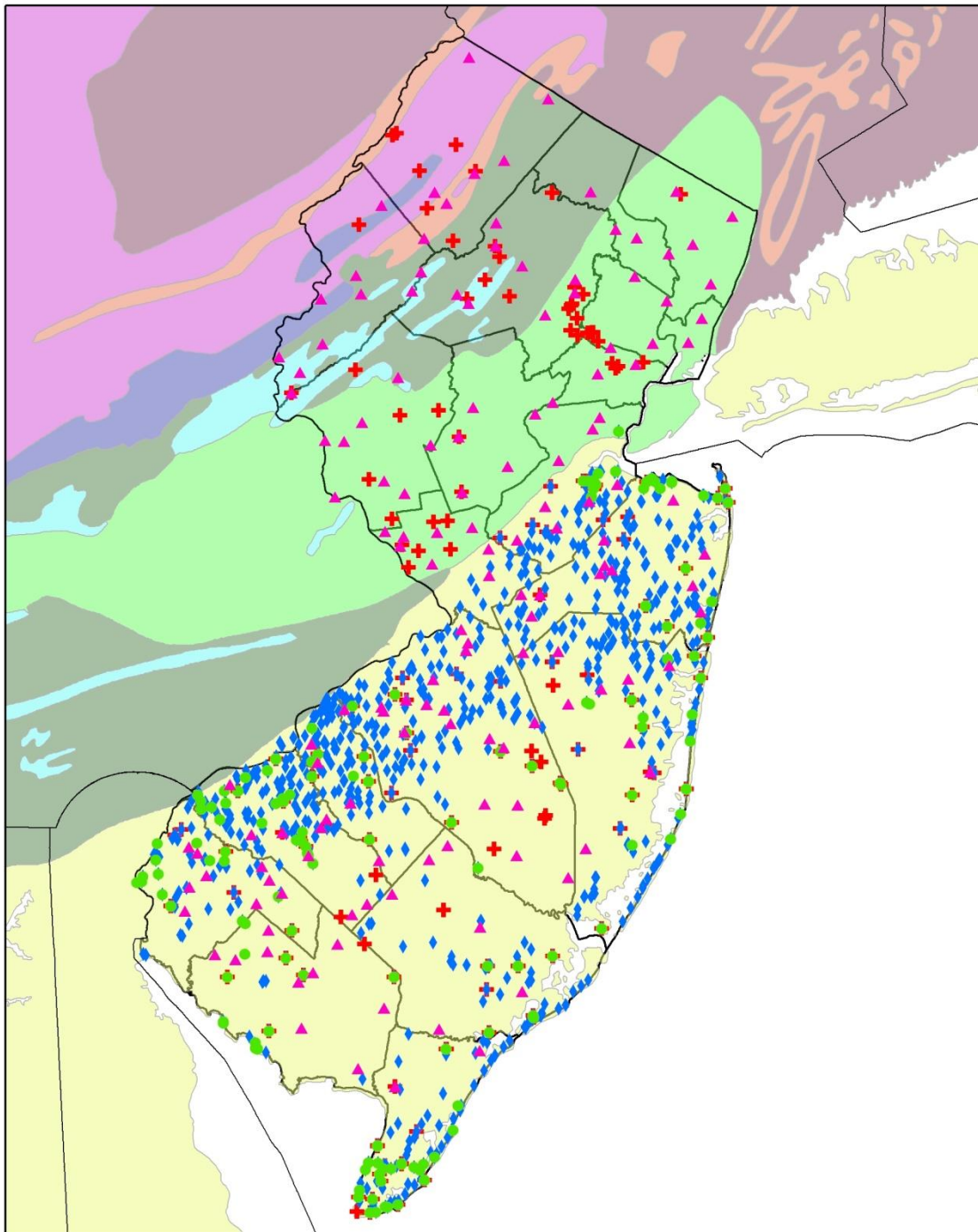
As Proposed in the
New Jersey Pilot Study
for the National Ground Water
Monitoring Network

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.