# Mercury in the shallow ground water of NJ

## NJAGWQMN

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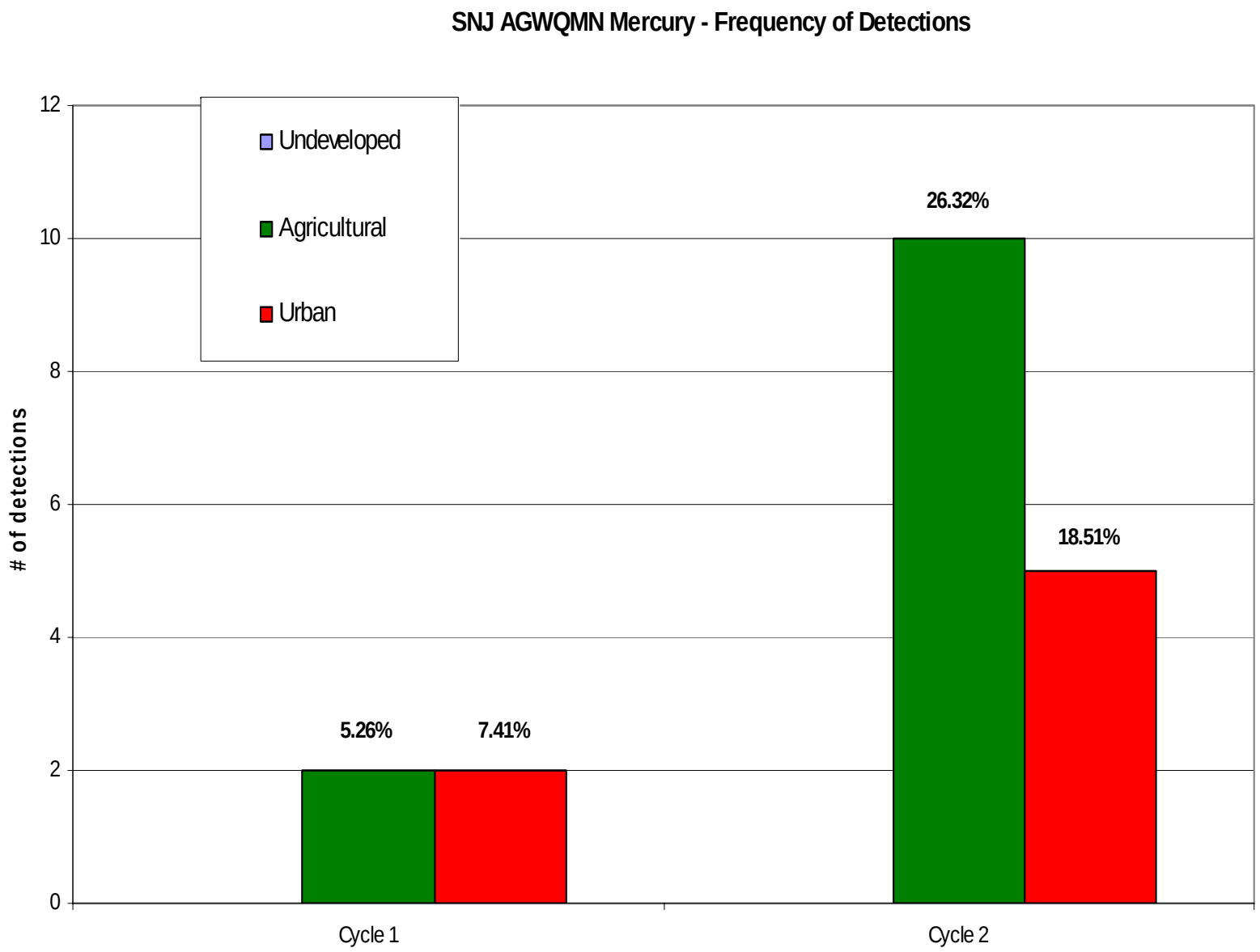
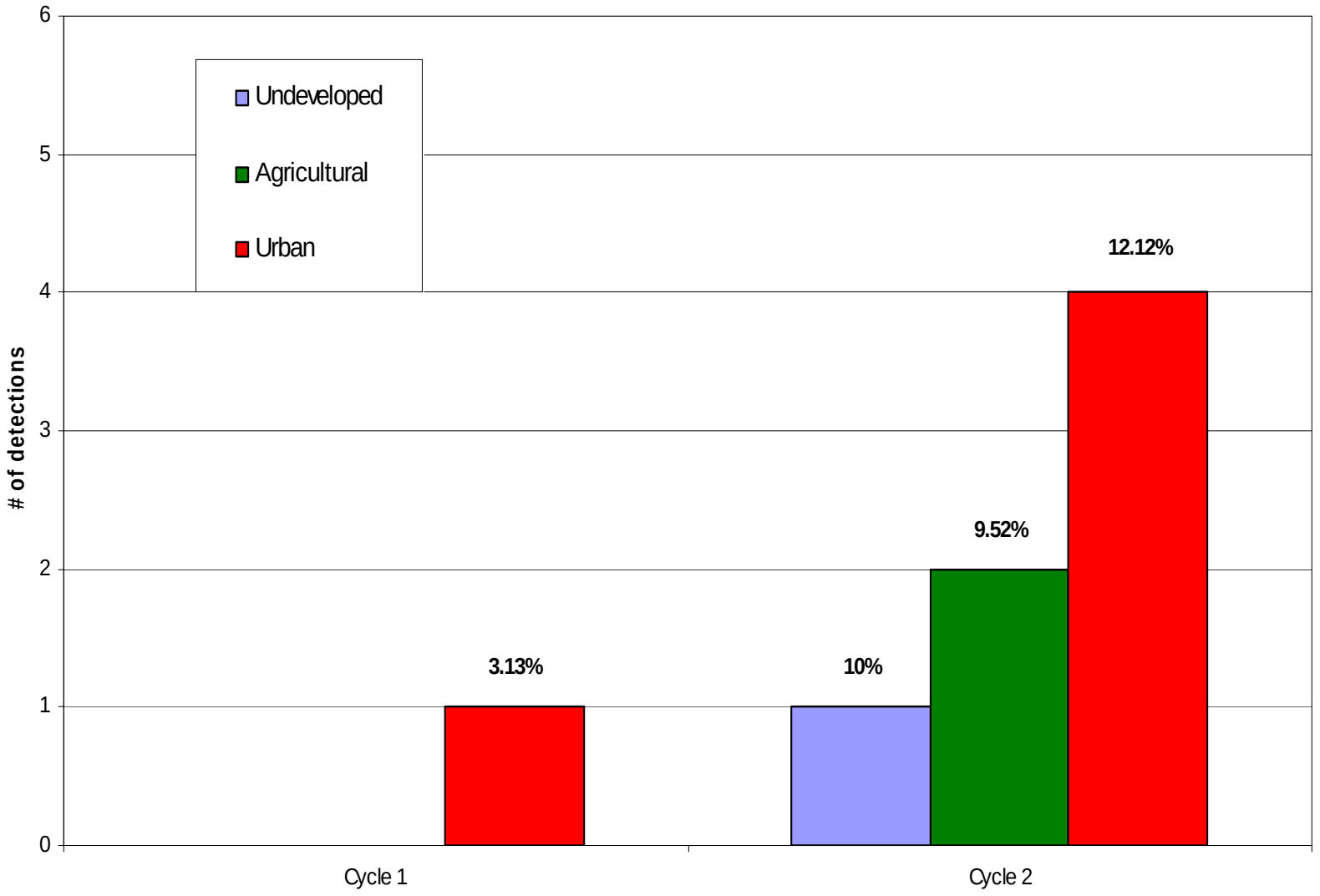
NJDEP/NJGS

NJ Water Monitoring Council Meeting

September 22, 2010

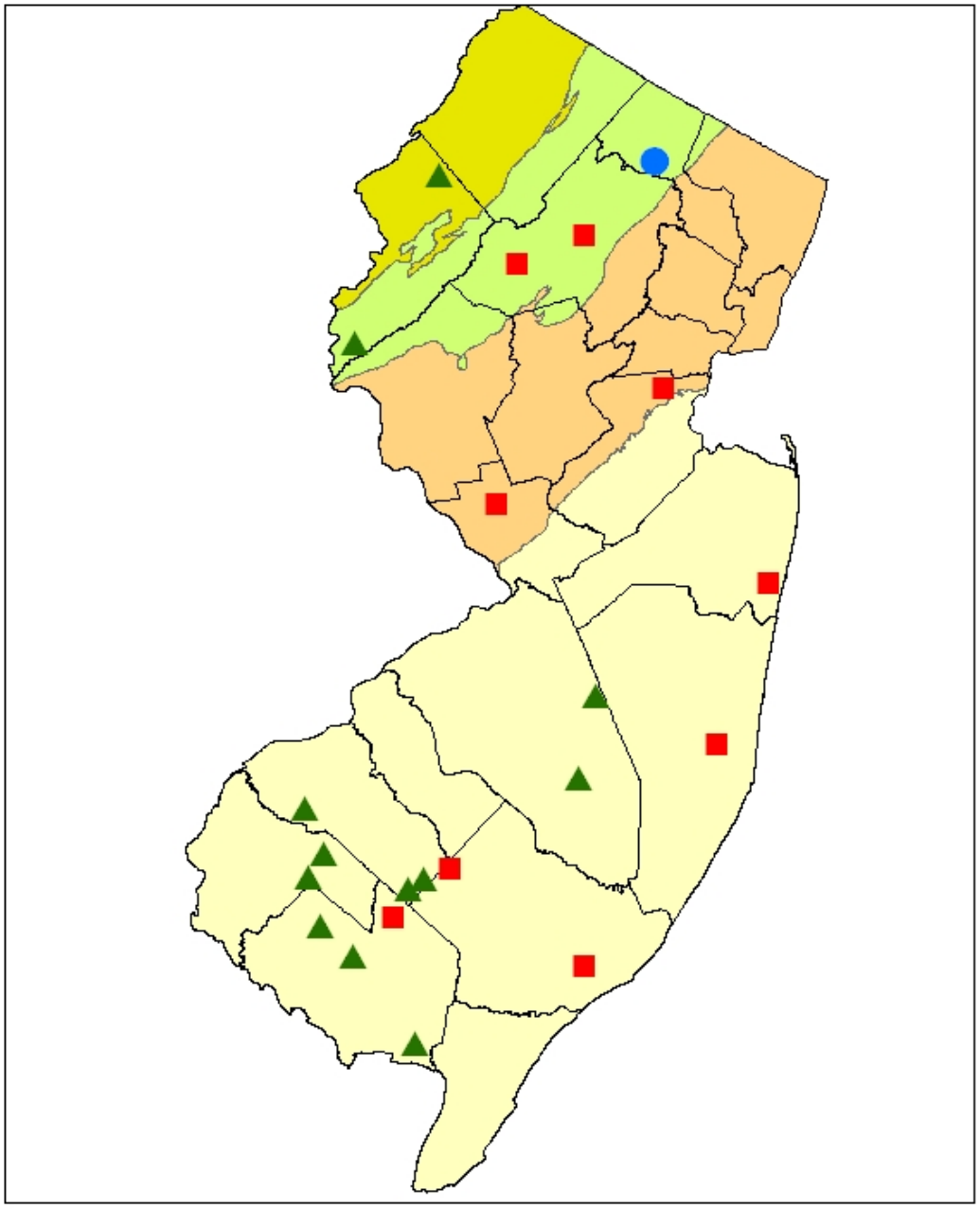

SNJ AGWQMN Mercury - Frequency of Detections
Undeveloped
Agricultural
Urban
# of detections
12
10
8
6
4
2
0
5.26%
7.41%
26.32%
18.51%
Cycle 1
Cycle 2


NNJ AGWQMN Mercury - Frequency of Detections
# of detections
0
1
2
3
4
5
6
Undeveloped
Agricultural
Urban
3.13%
10%
9.52%
12.12%
Cycle 1
Cycle 2

# Mercury Concentrations

| (µg/L) | Undeveloped | | | Agricultural | | | | Urban | |
|---|---|---|---|---|---|---|---|---|---|
| **SNJ** | Min | Median | Max | Min | Median | Max | Min | Median | Max |
| Cycle 1 | <0.01 | <0.23 | <0.23 | <0.01 | <0.1 | 1.708 | <0.01 | <0.01 | 0.13 |
| Cycle 2 | <0.01 | <0.01 | <0.02 | <0.01 | <0.02 | 0.26 | <0.01 | <0.01 | 0.63 |
| **NNJ** | | | | | | | | | |
| Cycle 1 | <0.01 | <0.01 | <0.02 | <0.01 | <0.02 | <0.02 | <0.01 | <0.02 | 0.08 |
| Cycle 2 | <0.01 | <0.01 | 0.012 | <0.01 | <0.01 | E0.008 | <0.01 | <0.01 | 0.329 |
| Drinking Water and Ground water Standard = 2 µg/L | | | | | | | | | |

# NJAGWQMN Mercury Detections



## Legend

- Undeveloped Land Use
- Urban Land Use
- Agricultural Land Use
- Counties

**Provinces**

- Coastal Plain
- Highlands
- Piedmont
- Valley and Ridge

N
W E
S

0 15 30 60 Miles

# Mercury Sources/Mobilization

- Possible Sources
- Natural
  - In the coastal plain as a mercuric chloride complex; background concentration is <10 ng/L
- Anthropogenic
  - Atmospheric deposition
  - Landfills
  - Industrial
  - Cemeteries
  - Household products
  - Household paints

- Possible modes of mobilization
- Change in pH
- Septic Effluent
- Fertilizers
- Road salt

- No correlation between mercury levels and pH, DO, nutrients, major ions, and other trace metals were observed in the AGWQMN.

# Conclusions

- The few mercury detections in the AGWQMN are most likely from anthropogenic sources.
- The exact source and/or mobilization of the mercury at the ground water table is not currently known.
- Mercury concentrations detected in the AGWQMN are below the drinking water and ground water standard.