
Trend Analysis for Selected Analytes, South Platte River, Denver, CO

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Study Purpose

Determine changes in levels of selected analytes in the South Platte River through time, examine how water quality changes as the river passes through the Denver Metro area, and identify areas where water quality in the river degrades.

Who is South Platte CURE?

South Platte Coalition for Urban River Evaluation

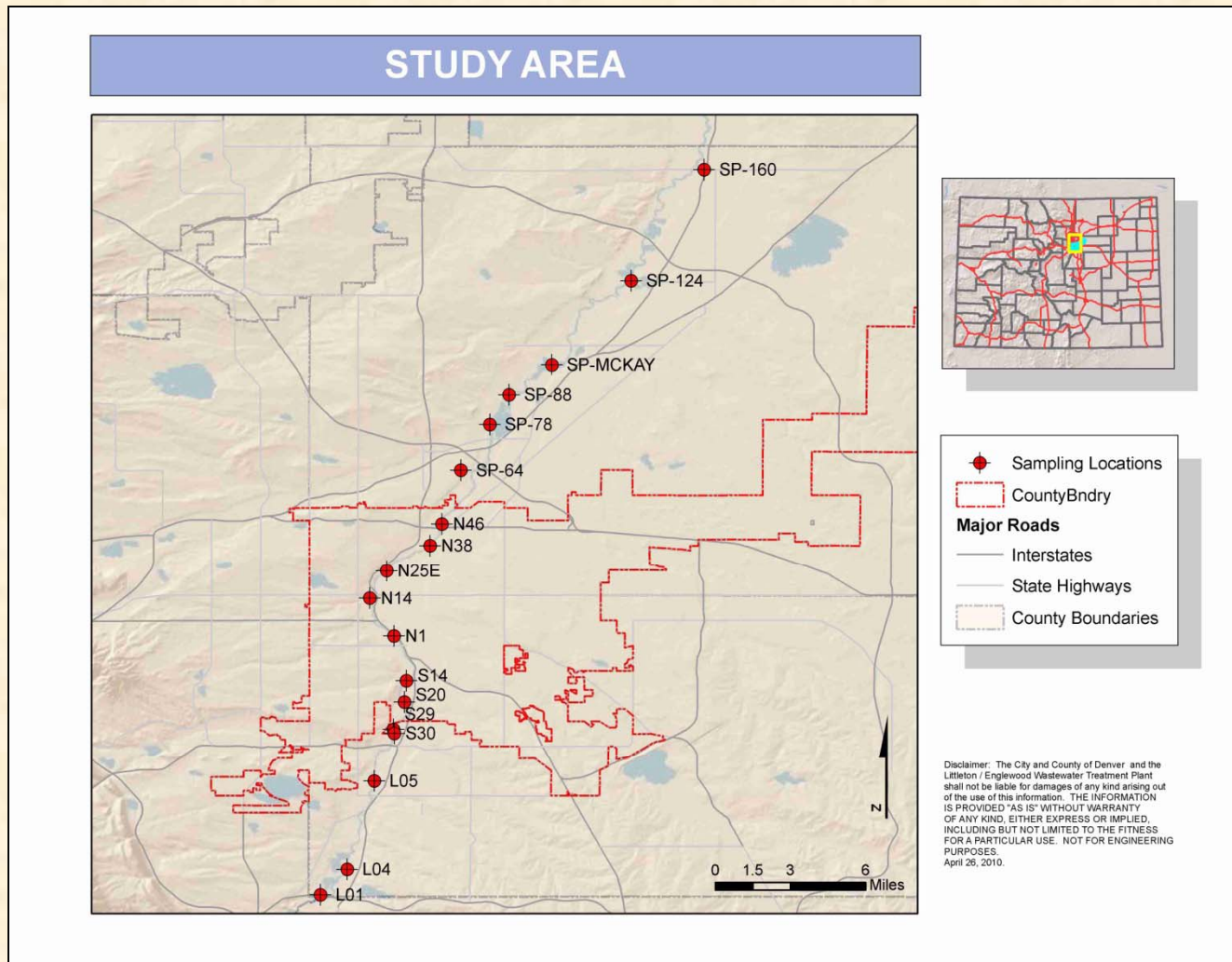
- Non-profit with objective of collecting and making available scientifically sound data for use in assessing the quality of surface water along the Urban South Platte River.
 - Members include wastewater treatment plants, municipalities, water suppliers, industry, and public health agencies.

More details at www.spcure.org

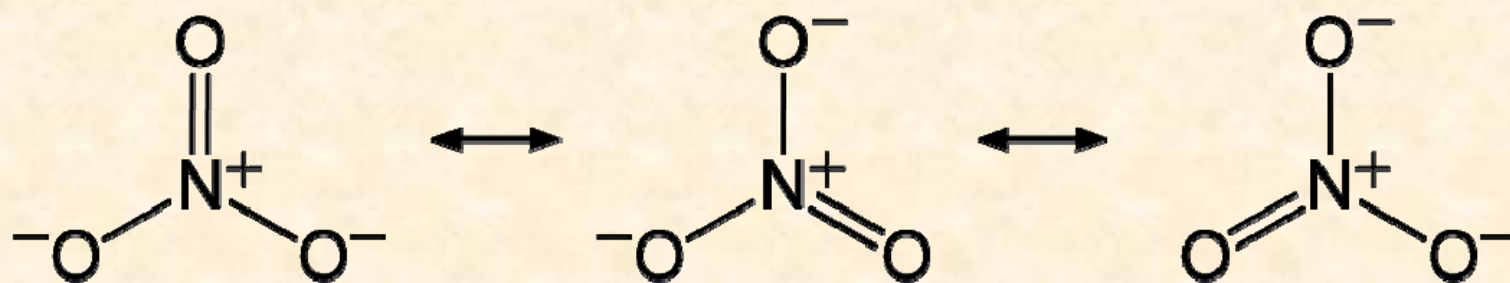
Study Components

- Conduct spatial evaluation using graphical and statistical techniques
 - Conduct trend analysis using standard statistical techniques
 - Analytes examined
 - Nitrate
 - Total Phosphorous
 - Dissolved Selenium
 - *Escherichia coli*
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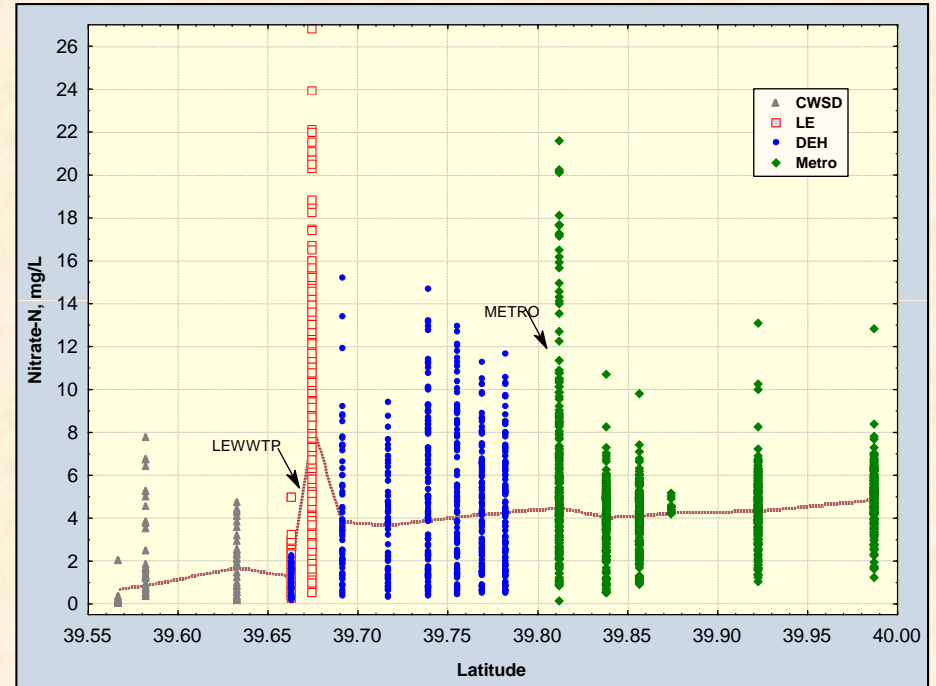
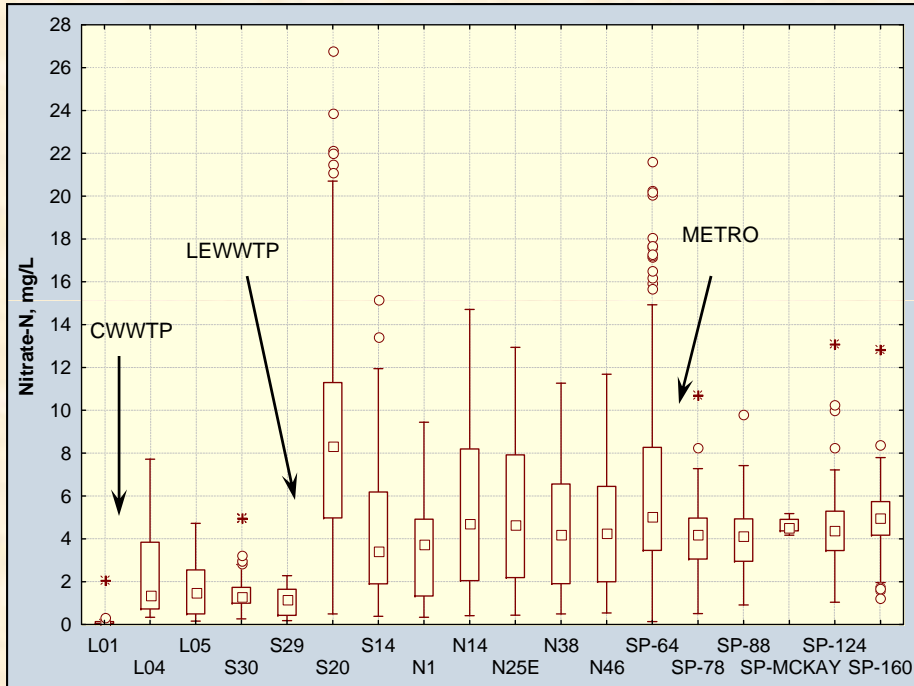
Sampling Locations



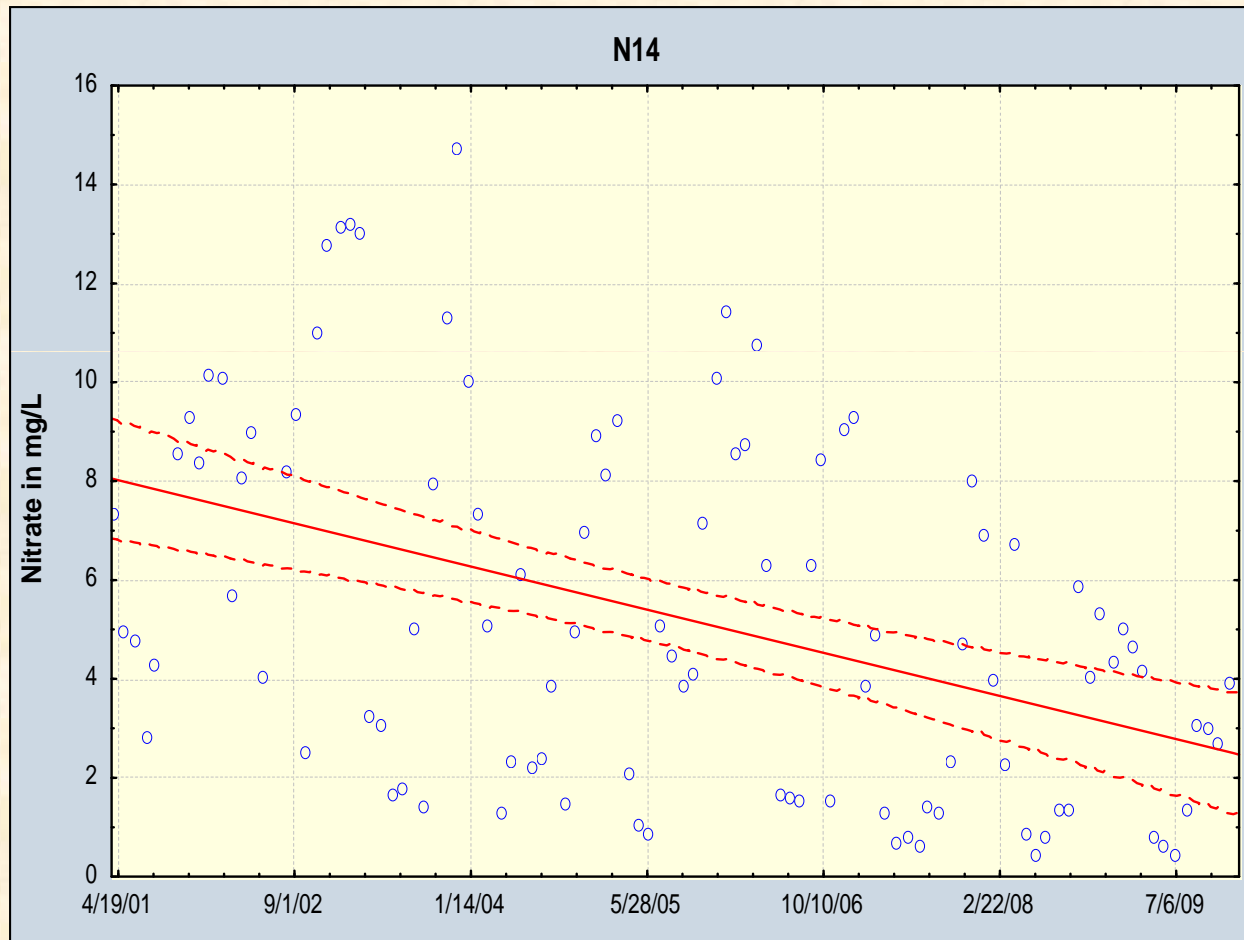
Nitrate



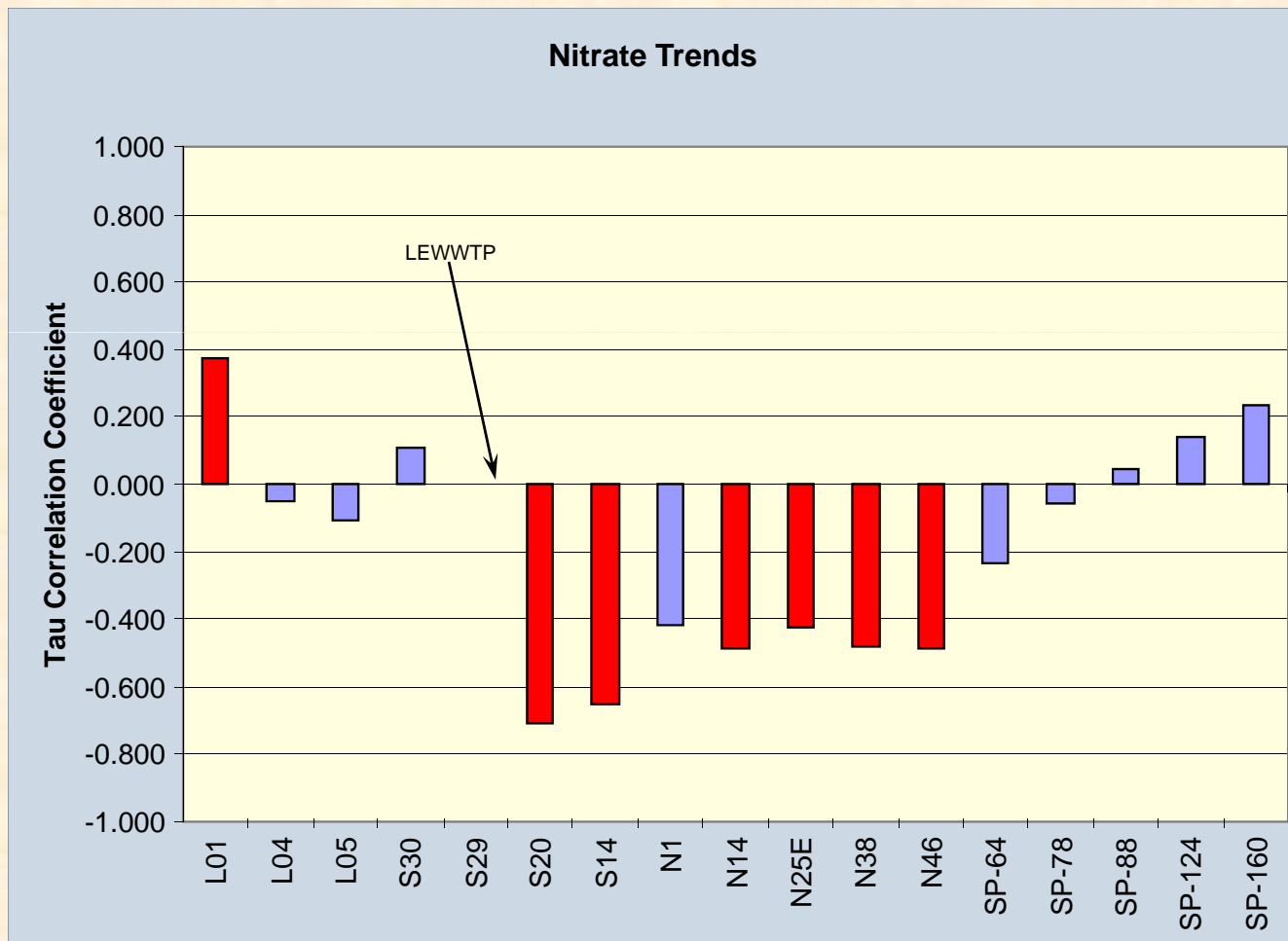
Spatial Trends



Overall Changes Through Time

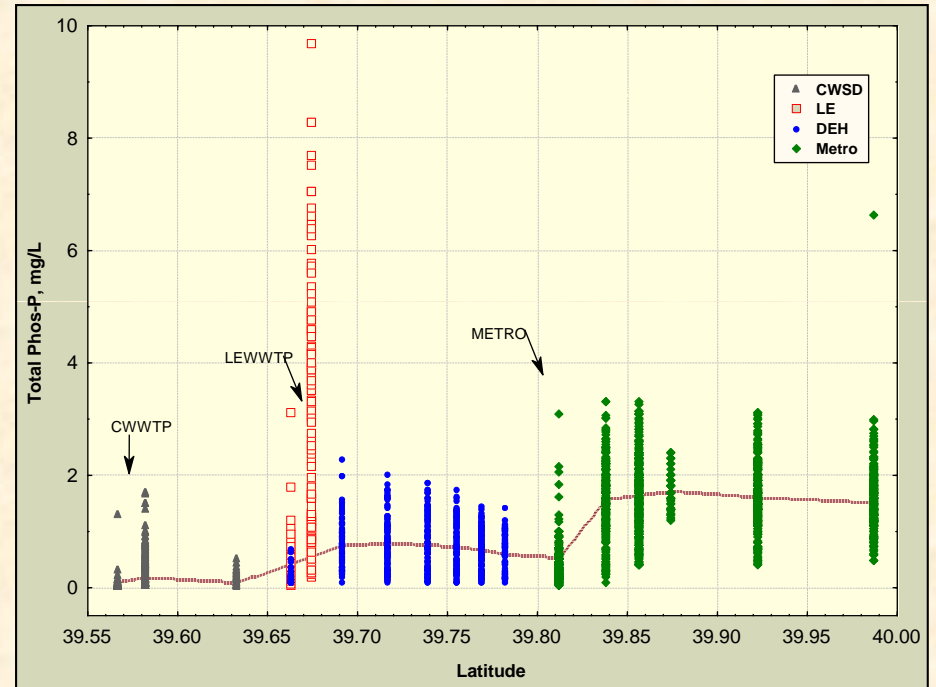
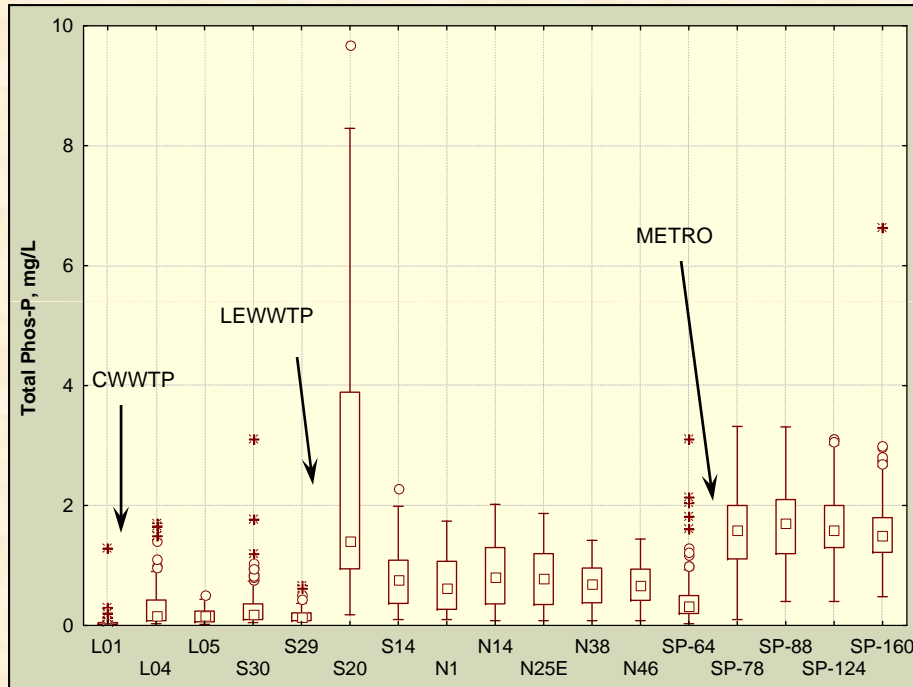


Overall Changes Through Time

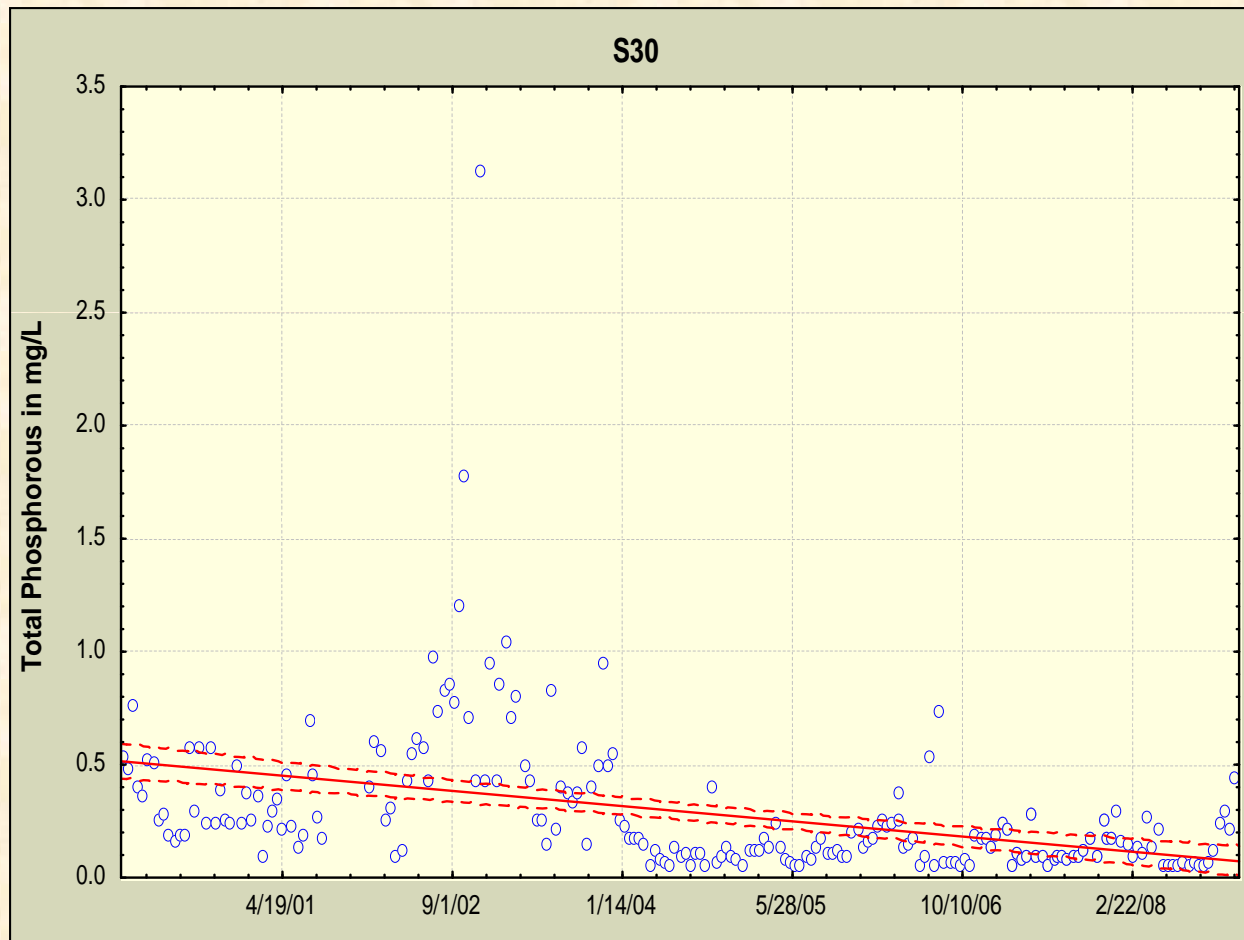


Phosphorous

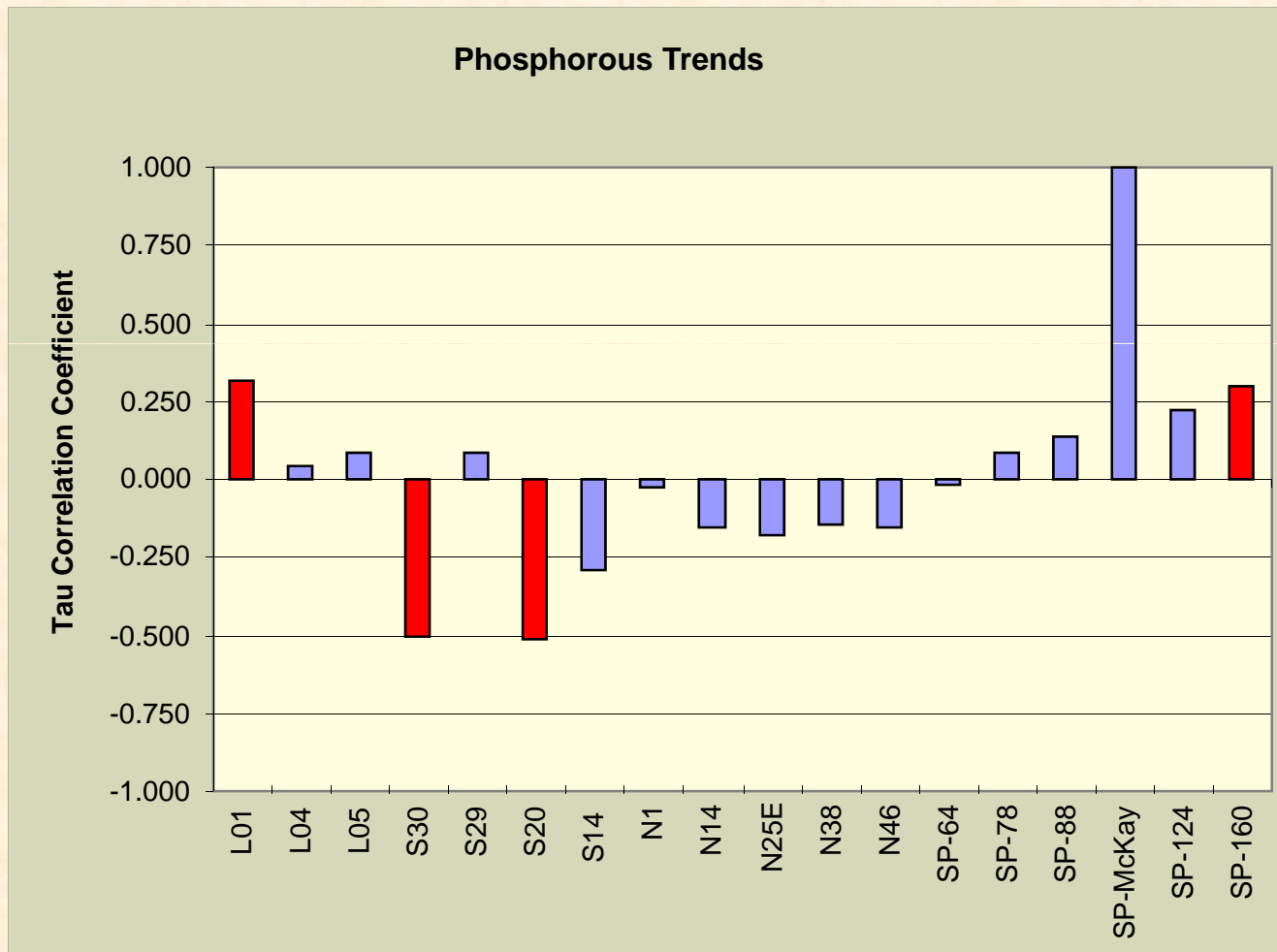
Spatial Trends



Overall Changes Through Time

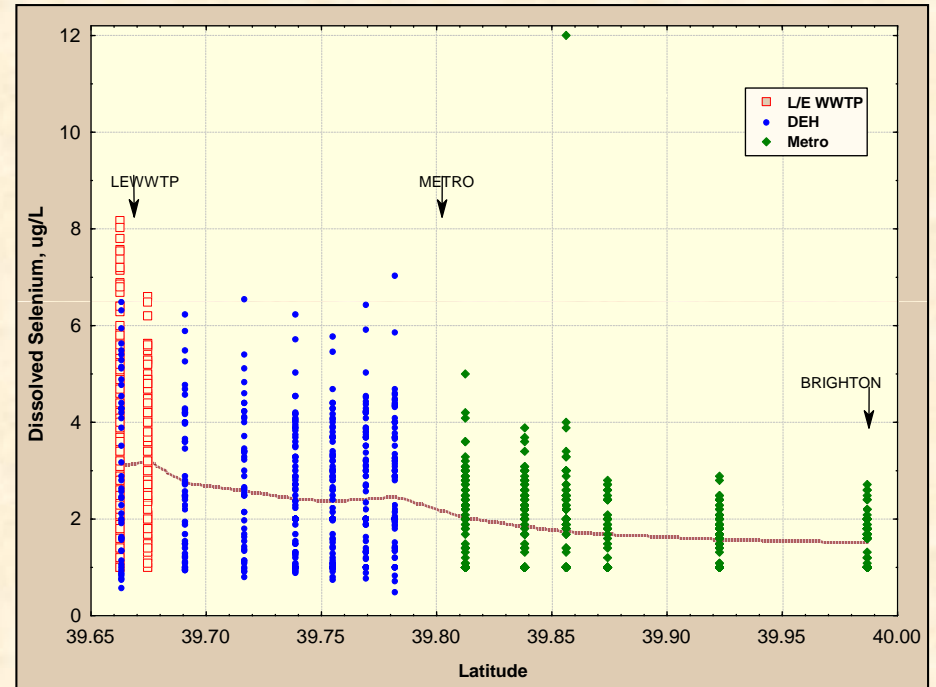
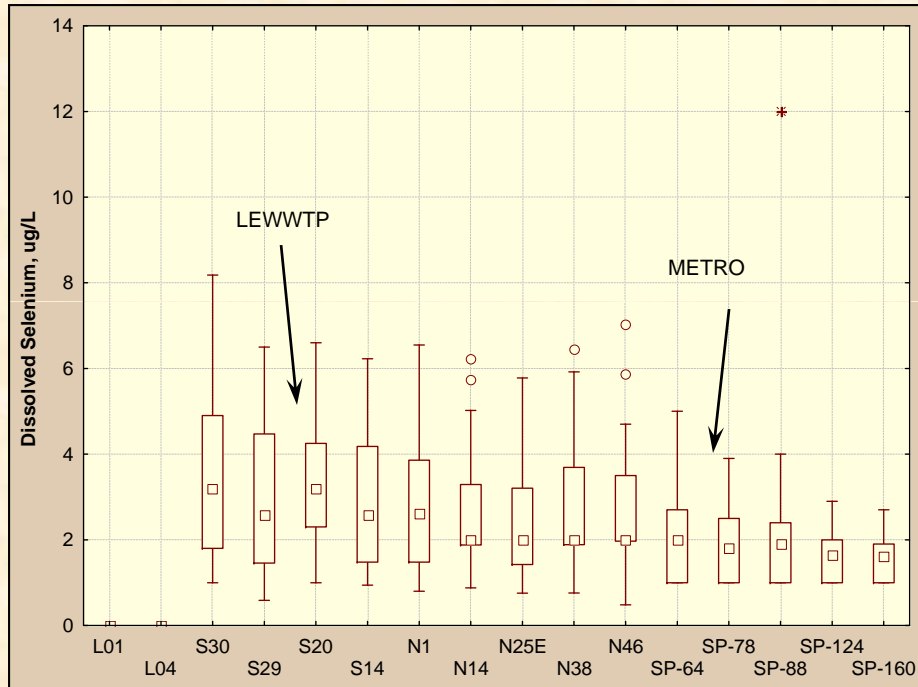


Overall Changes Through Time

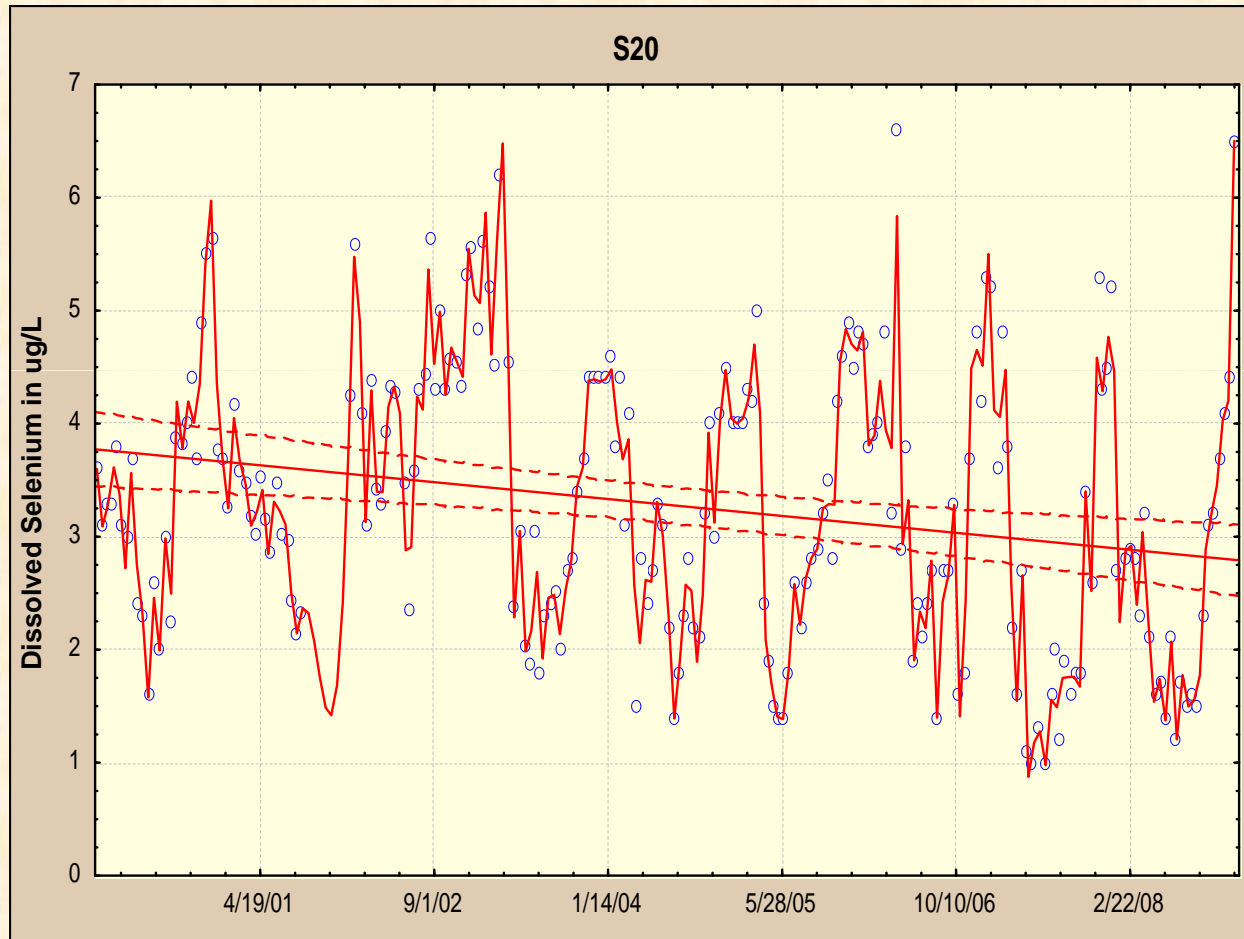


Selenium

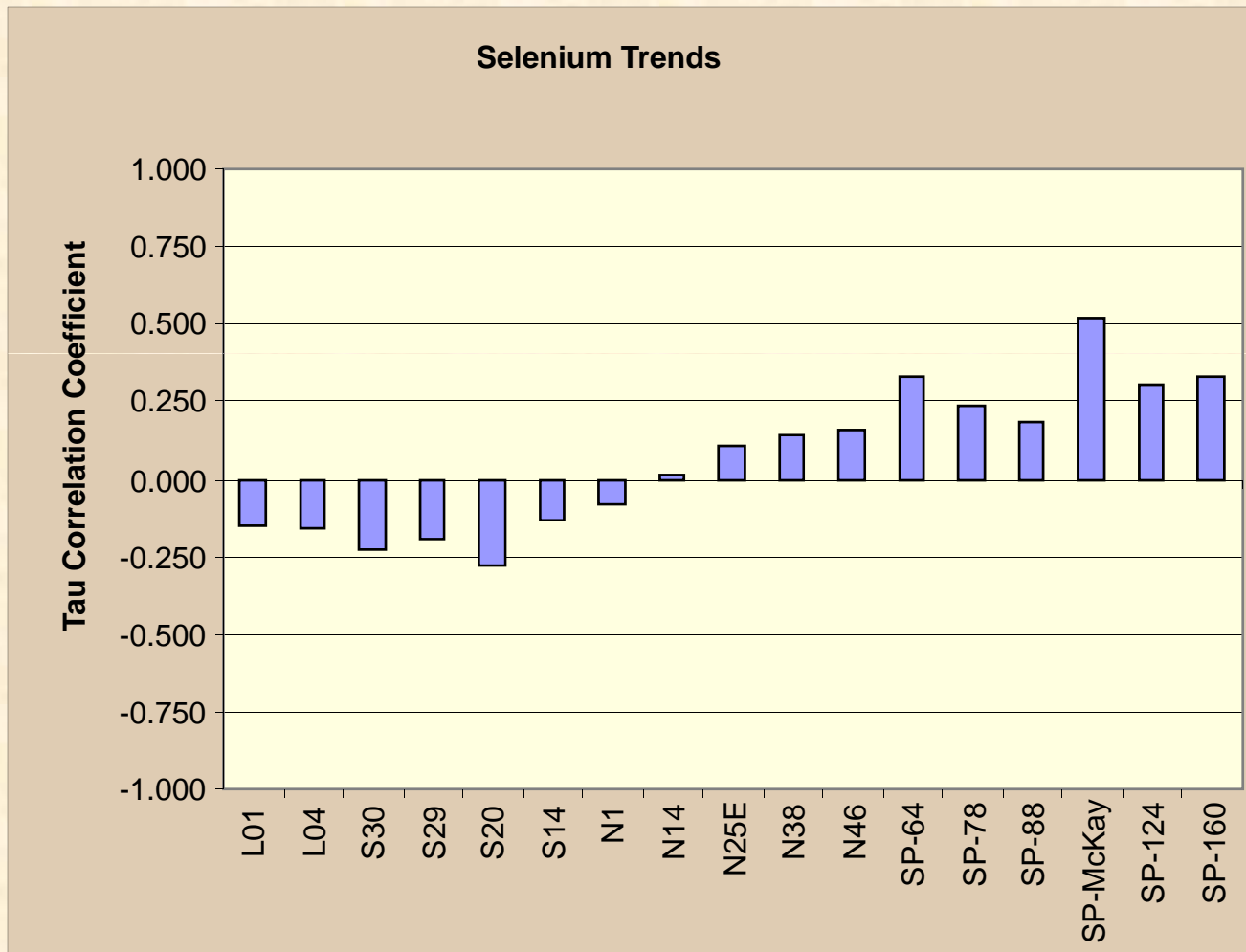
Spatial Trends



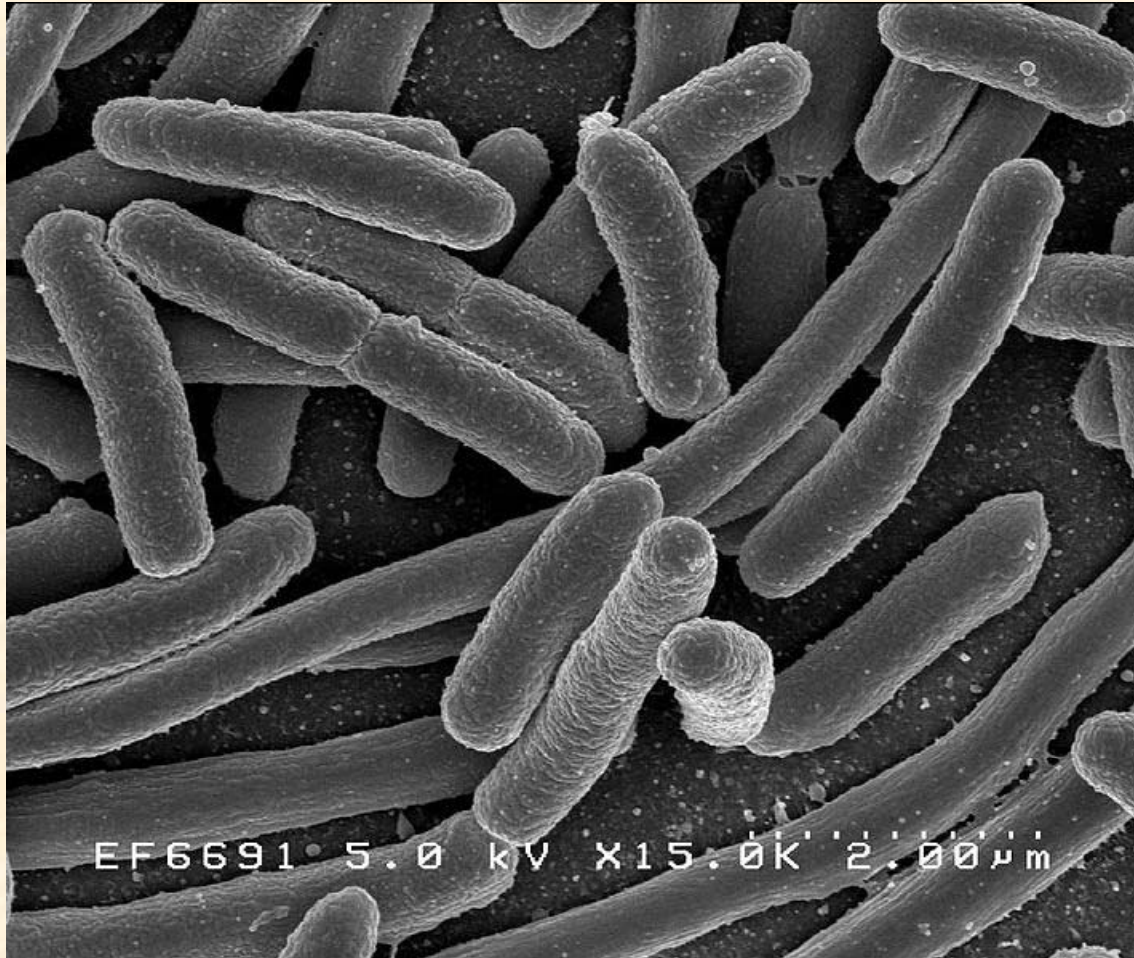
Overall Changes Through Time



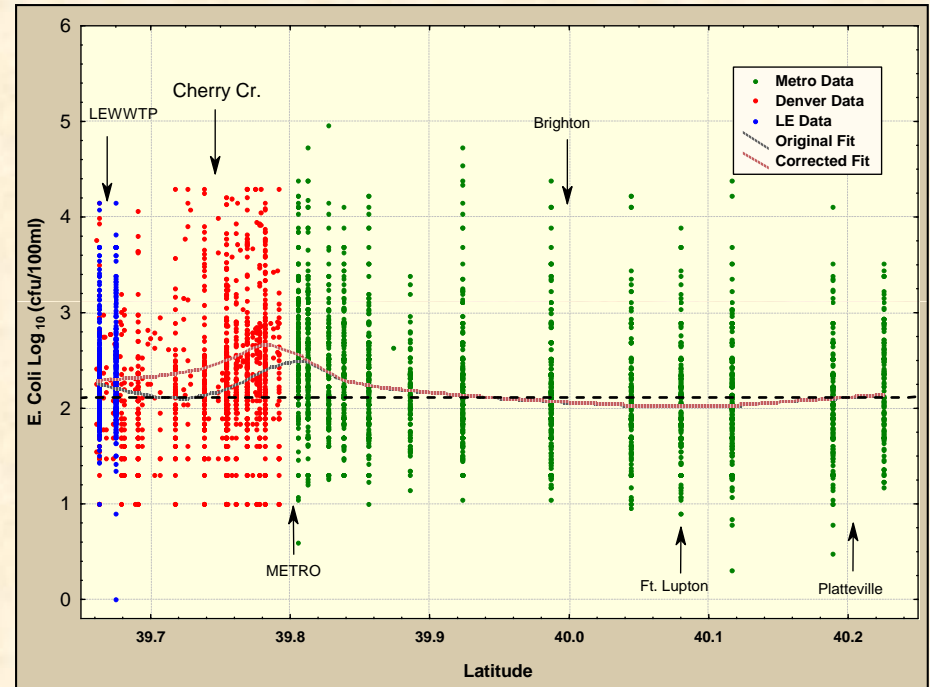
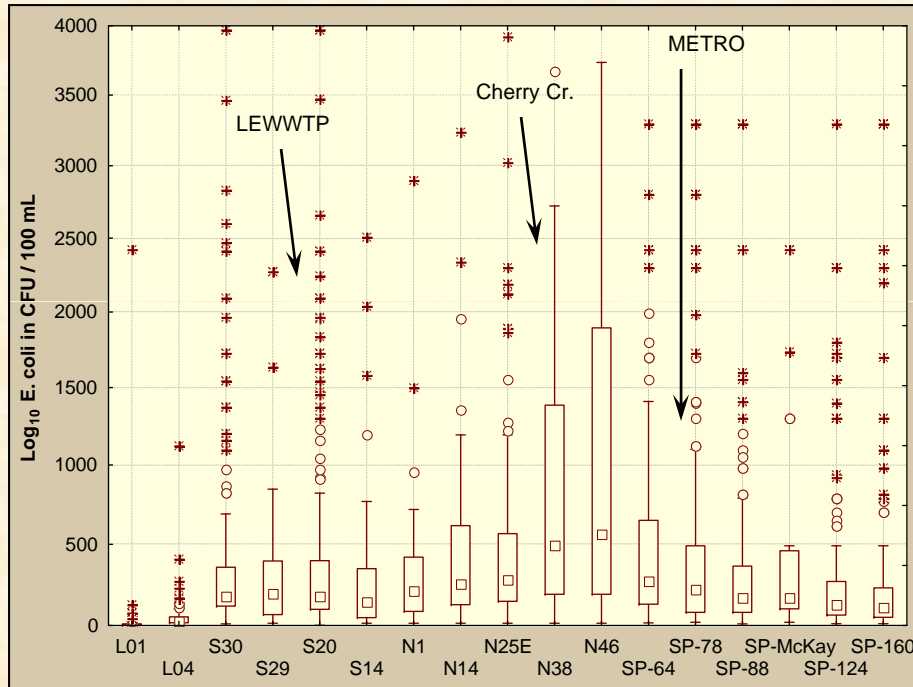
Overall Changes Through Time



Escherichia coli

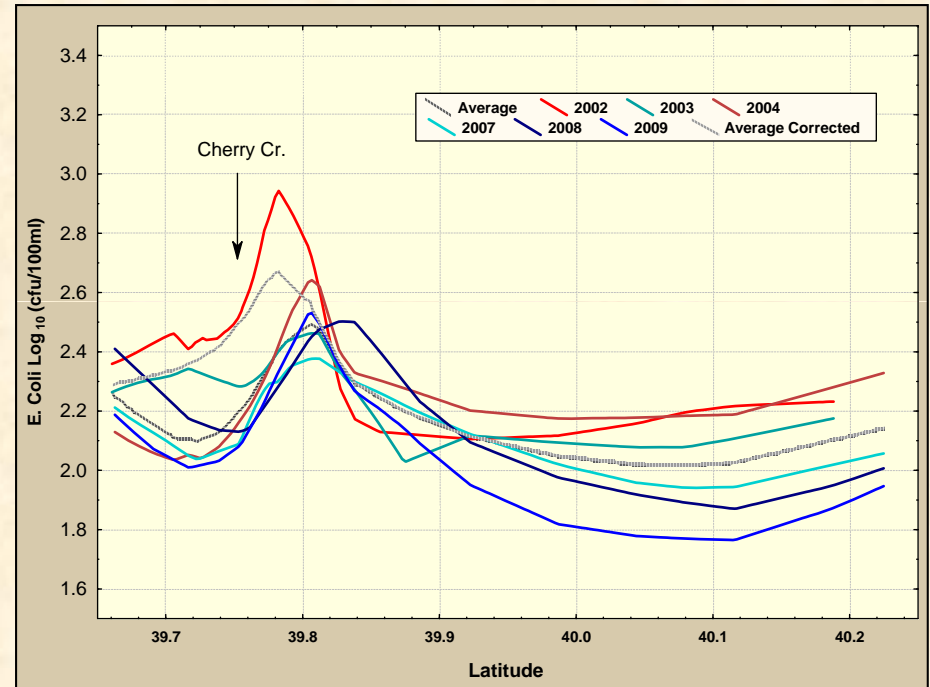
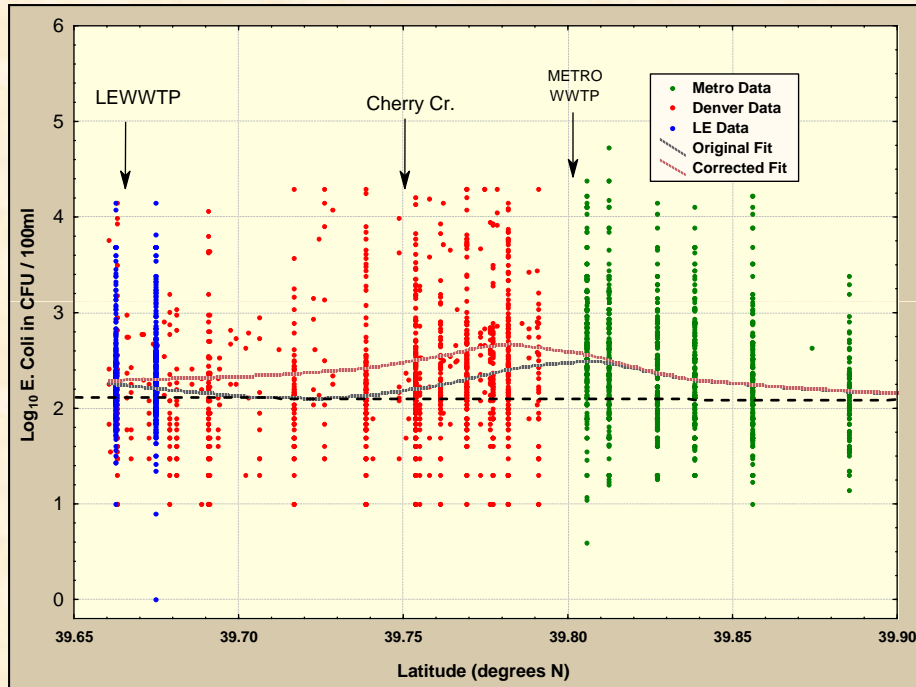


Spatial Trends

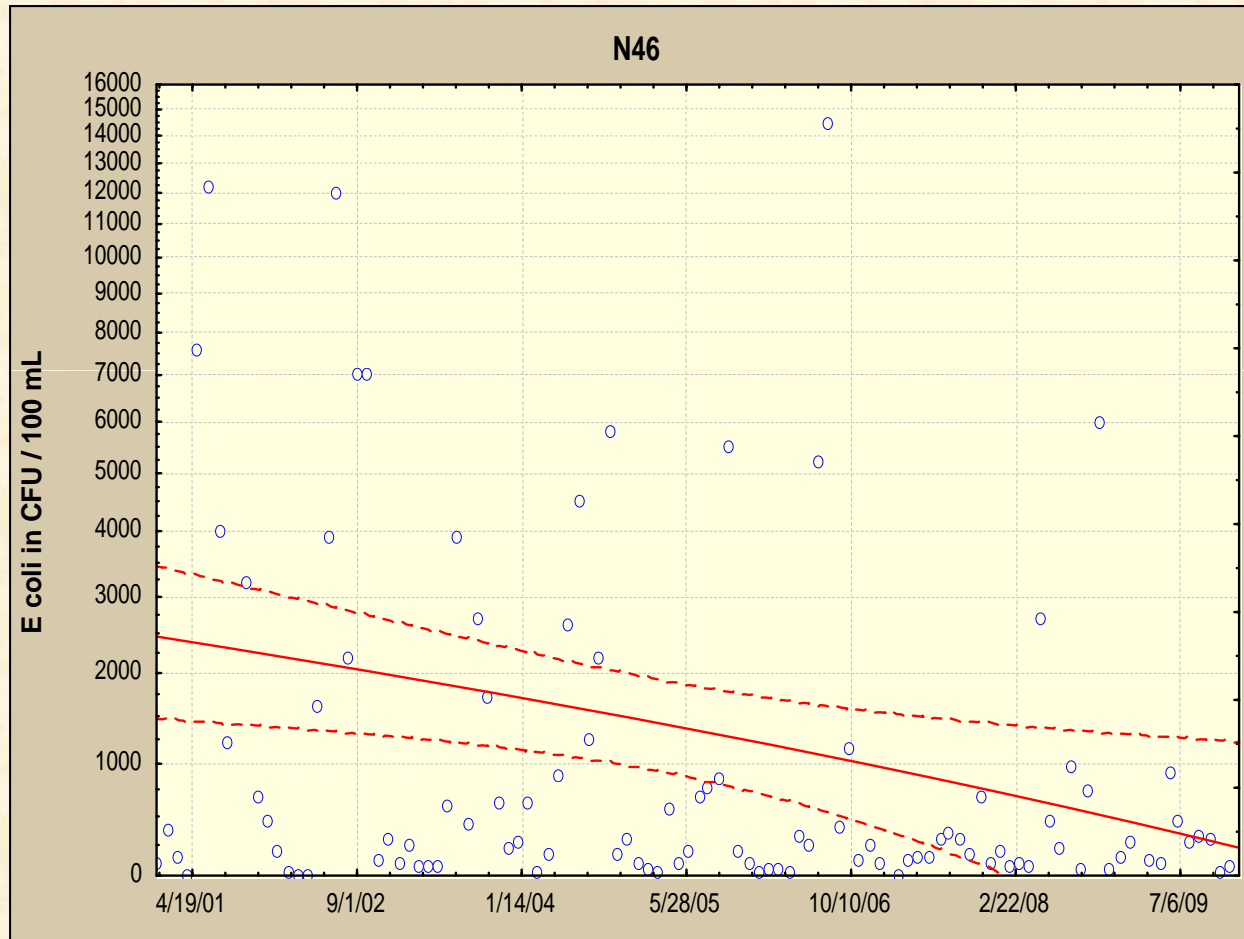


Note:
 Not all outliers and extremes shown in chart on right.
 Data corrected to reflect differences in analytical methods.

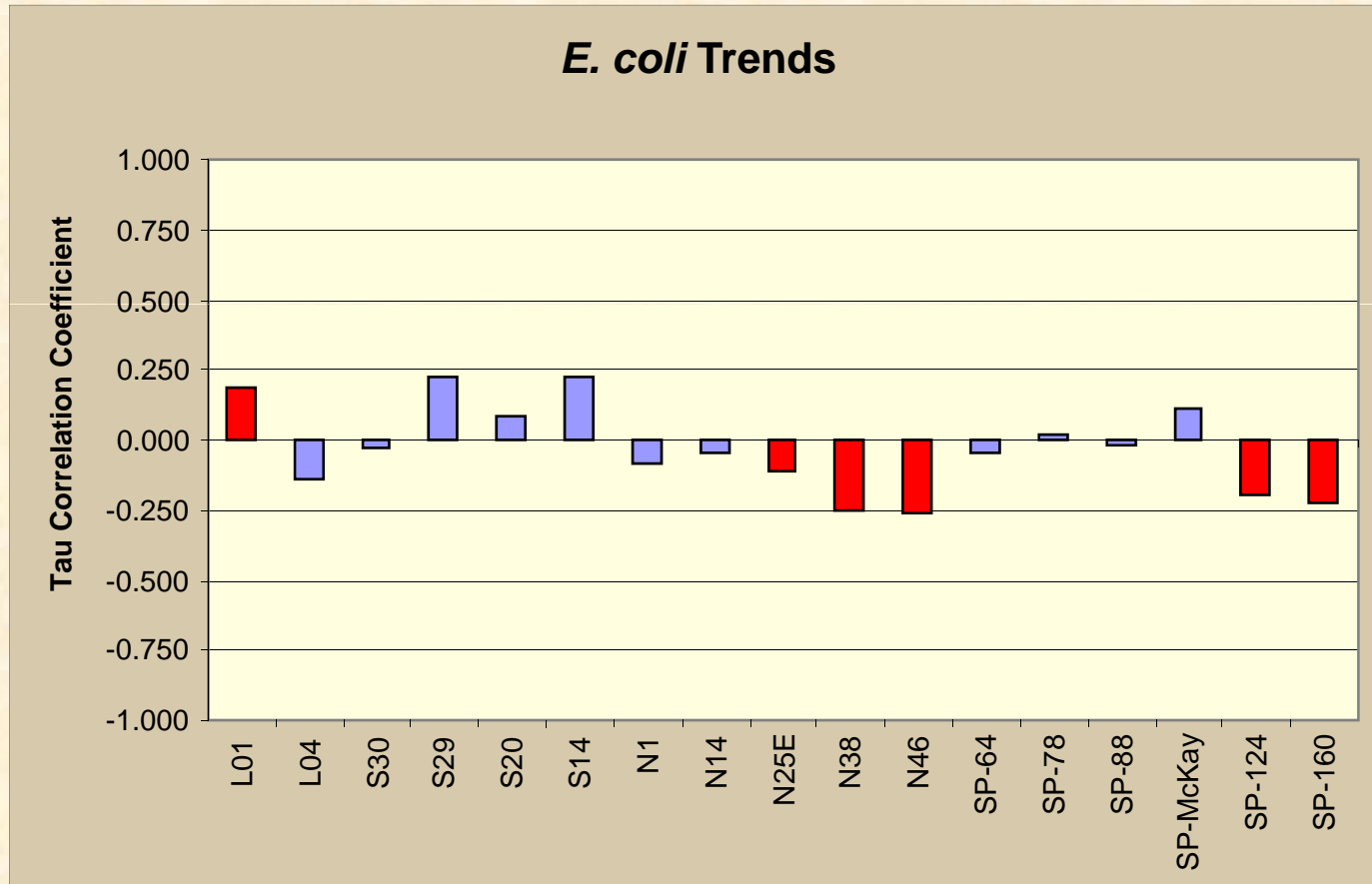
Spatial Trends



Overall Changes Through Time



Overall Changes Through Time



Conclusions

- Observed spatial trends in the Denver Metro area include
 - Nitrate levels increase downstream
 - Increasing downstream phosphorous levels
 - Decreasing downstream selenium levels
 - *E. coli* levels increase downstream to the Denver city limits then decrease downstream of Denver
 - Evaluation of spatial trends allows for identification of specific problem areas
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Conclusions

- Overall trends in the Denver Metro area include
 - Statistically significant decreases in nitrate levels through time
 - No statistically significant changes in selenium or phosphorous levels through time
 - Statistically significant decreases in *E. coli* levels through time
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Questions?

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