

Ohio River Conditions Algae Issues

Agenda Item 11

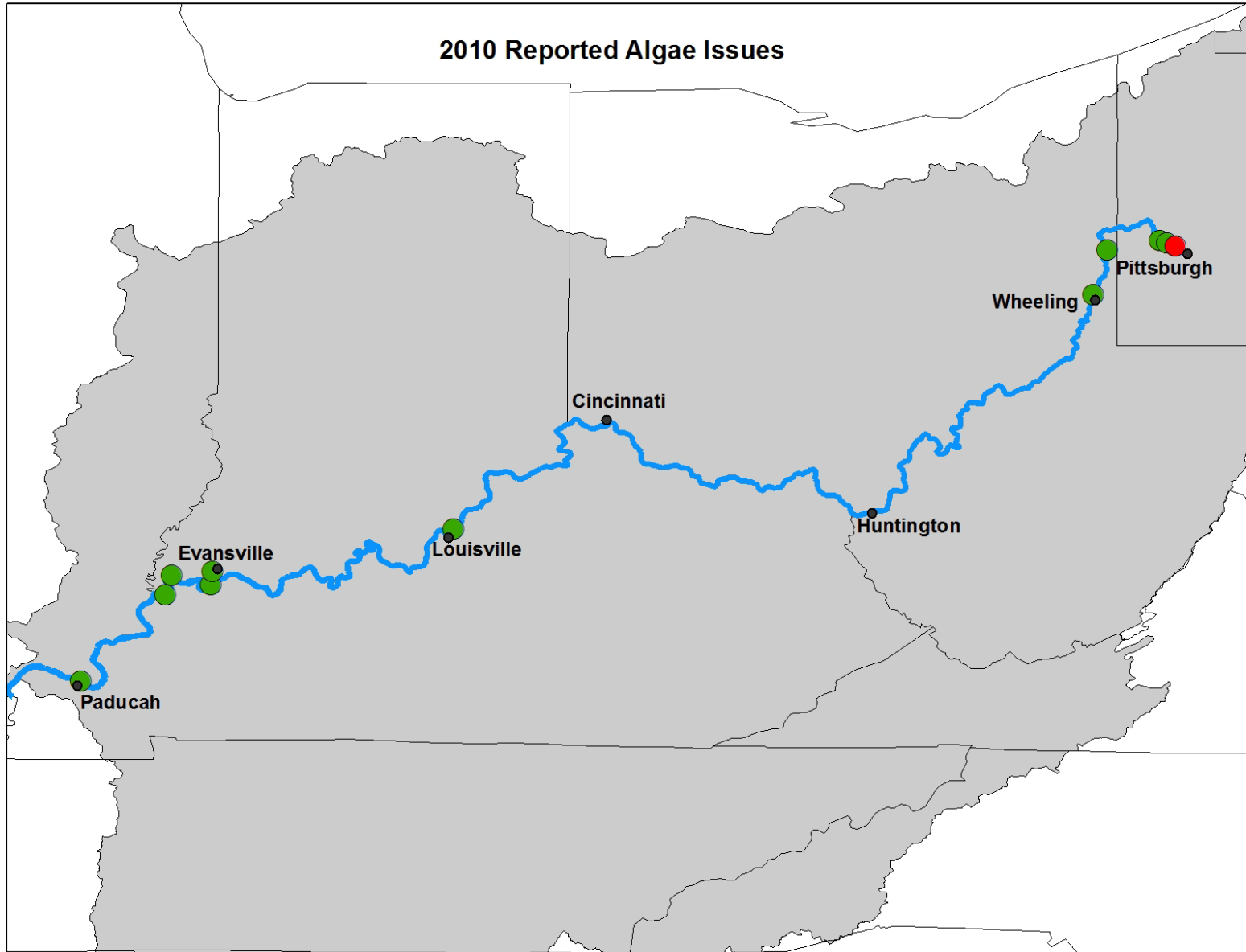
Algae in the News

- **Evansville, IN**
 - **Evansville drinking water nastiness might be around awhile**
 - **City: Tap water with odd taste, algae safe to drink**
- **Louisville, KY**
 - **Customers Complain Of Foul-Smelling Tap Water**
 - **Officials Point Finger At Mother Nature**

2010 Reported Algae Issues

- Hays Mine, PA – T&O
- Robinson Water, PA – Filter Clogging
- Moon Township, PA – T&O
- Toronto, OH – High pH
- Wheeling Water, WV – High pH
- Louisville, KY – T&O
- Evansville, IN – T&O
- Henderson, KY – T&O
- Mt. Vernon, IN – T&O
- Morganfield, KY – T&O
- Paducah, KY – T&O

2010 Reported Algae Issues



Hays Mine

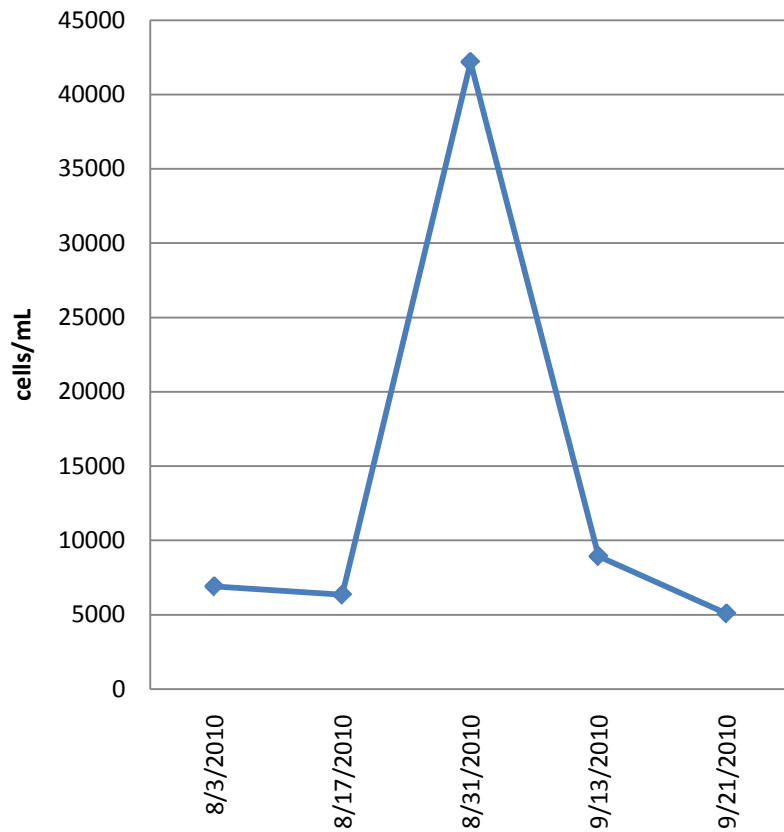
- Reported taste and odor problems beginning mid-August
- Detected MIB but not geosmin
- pH range was normal
- NKU Water Research Laboratory found low algae concentrations
- Identified bacteria *actinomyces*
 - Anaerobic
 - Causes T&O

Evansville

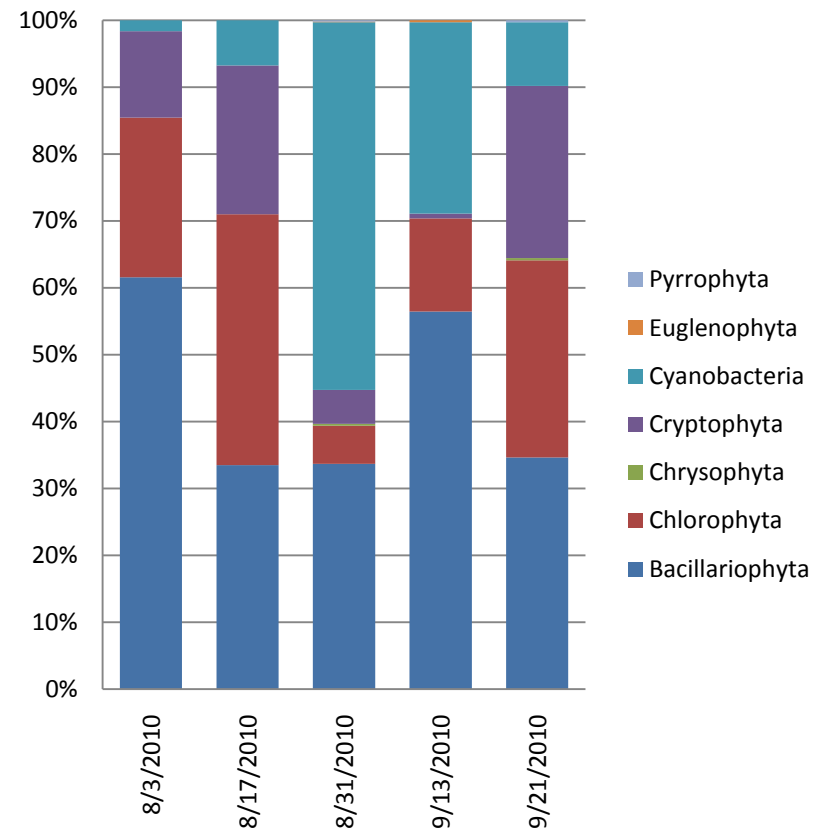
- Received several media calls
- River did not have floating mats of algae
- Collected an additional algae sample
 - Very high algae concentrations
 - Blue-Greens include *Anabaena*, *Aphanizomenon* and *Planktothrix*. Lower concentrations of *Microcystis*.
 - Diatom most common *Aulacoseira*

Evansville Algae Sampling

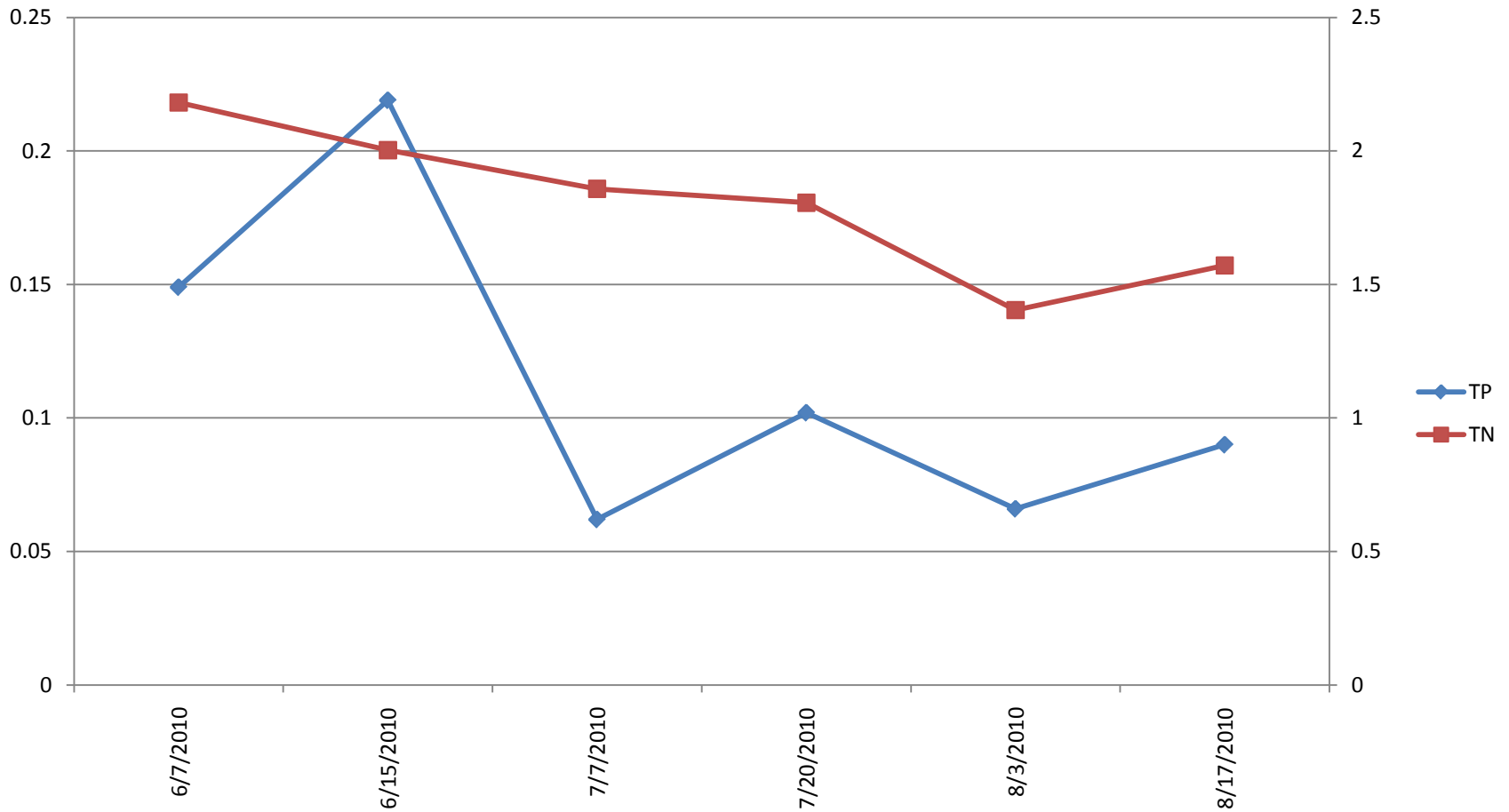
Summer Algae Concentration



Community Composition



Evansville Algae Sampling

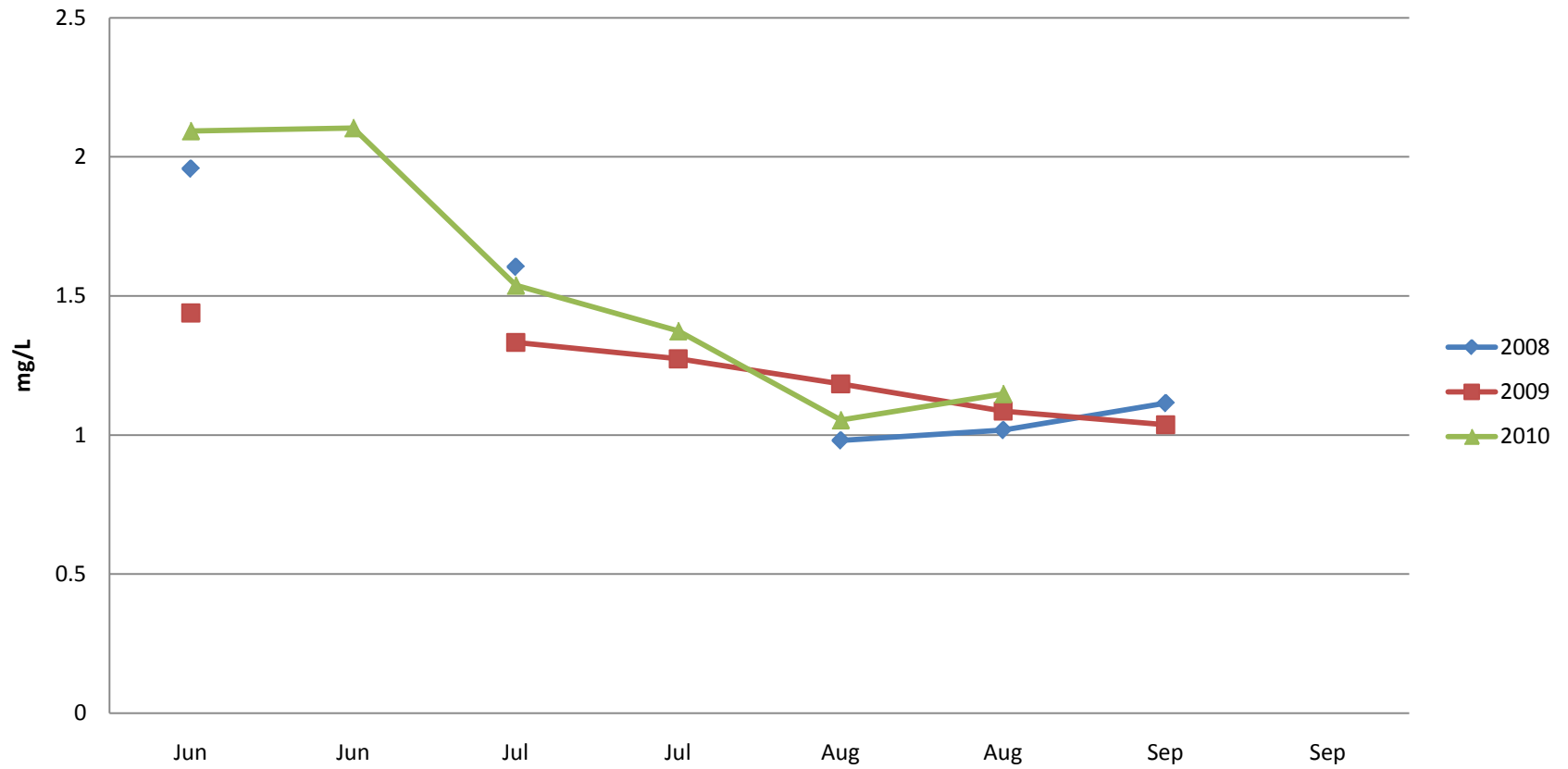


Cincinnati Area Comparison

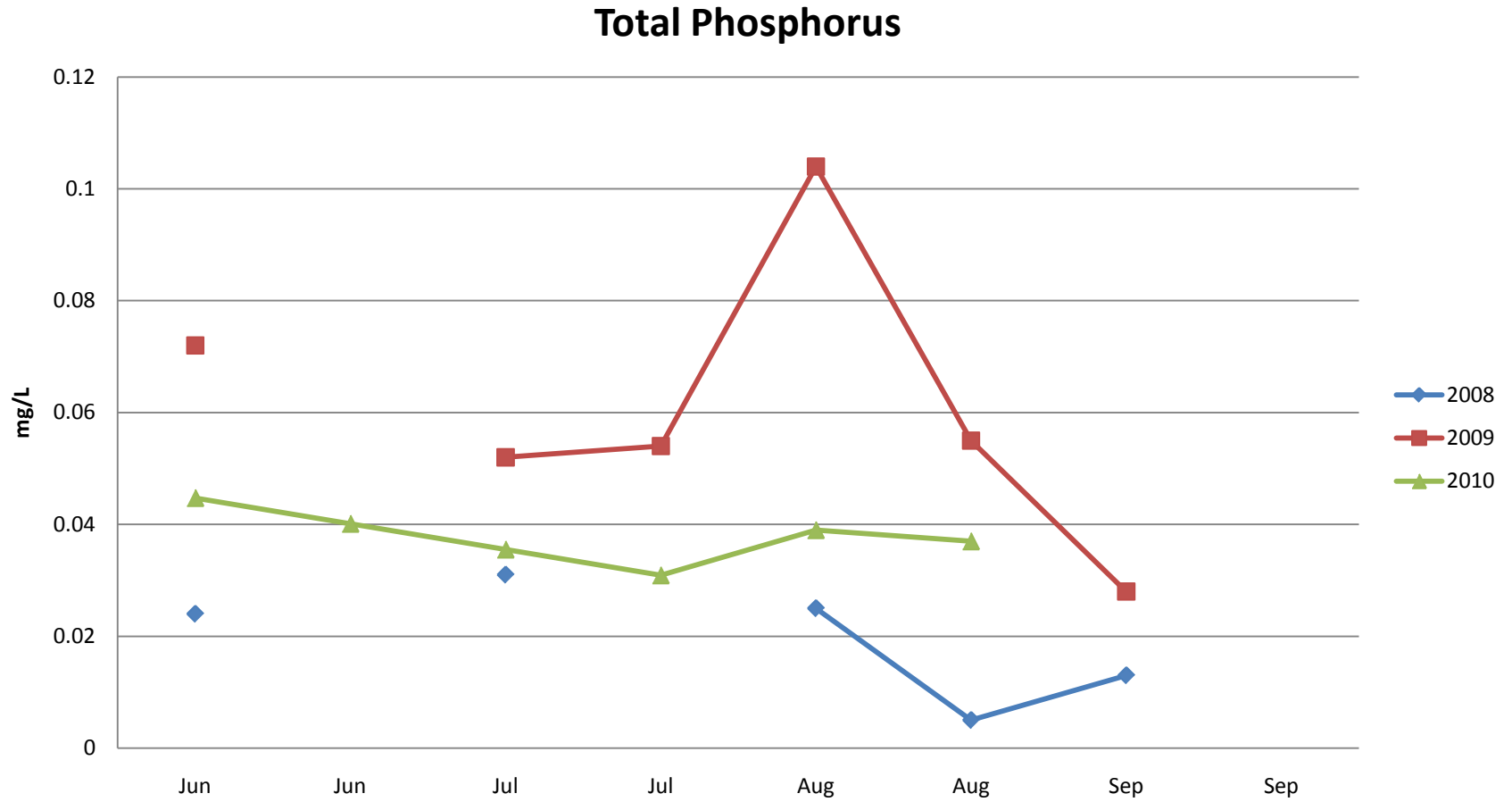
- 2008 - Microcystis bloom
 - covered 30 miles of river
 - Press release with Department of Health concerning safety
- 2009 - No algae bloom despite dry summer
- 2010 – No algae bloom even with record high temperatures

Cincinnati TN 2008-2010

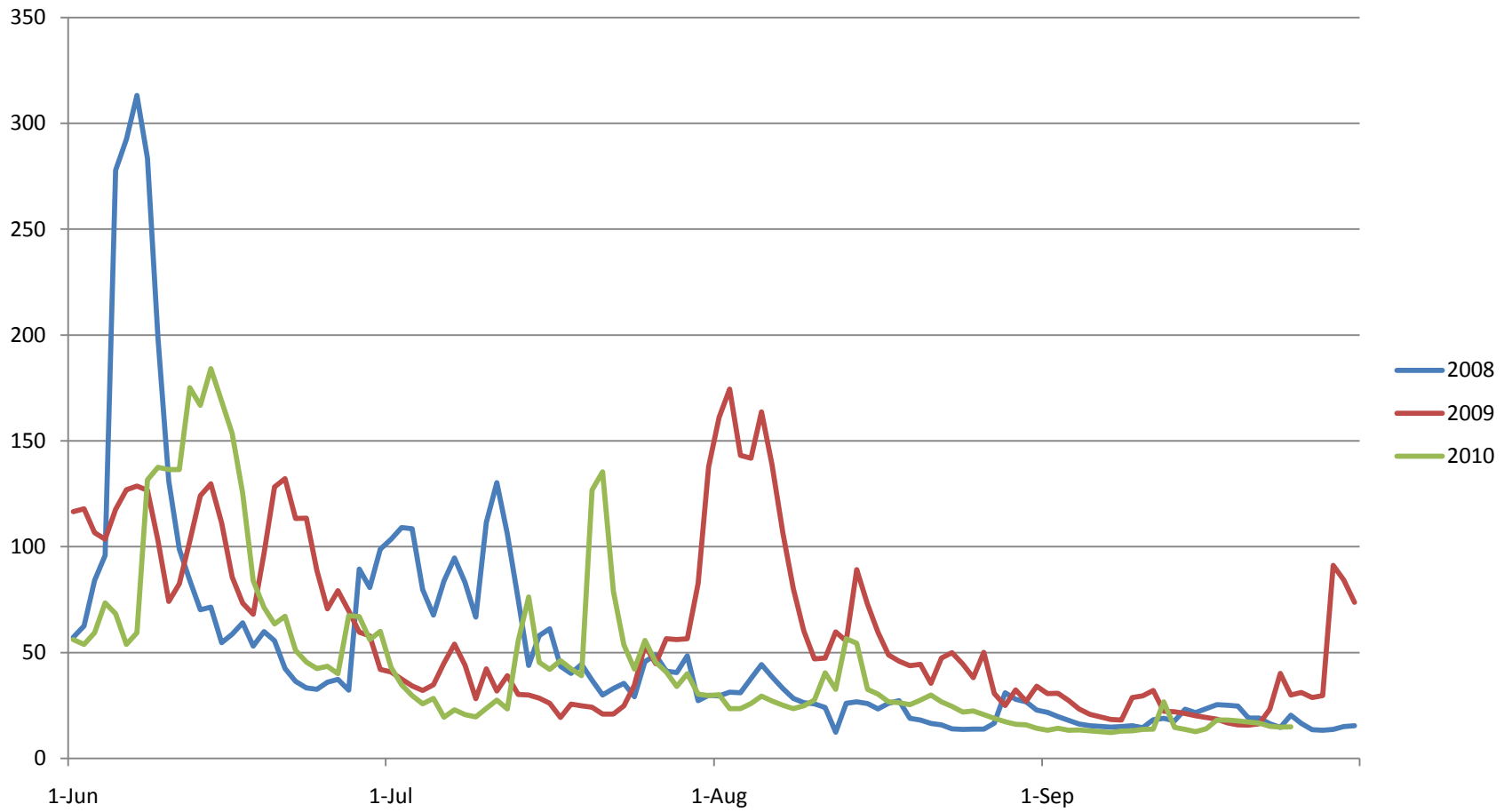
Total Nitrogen



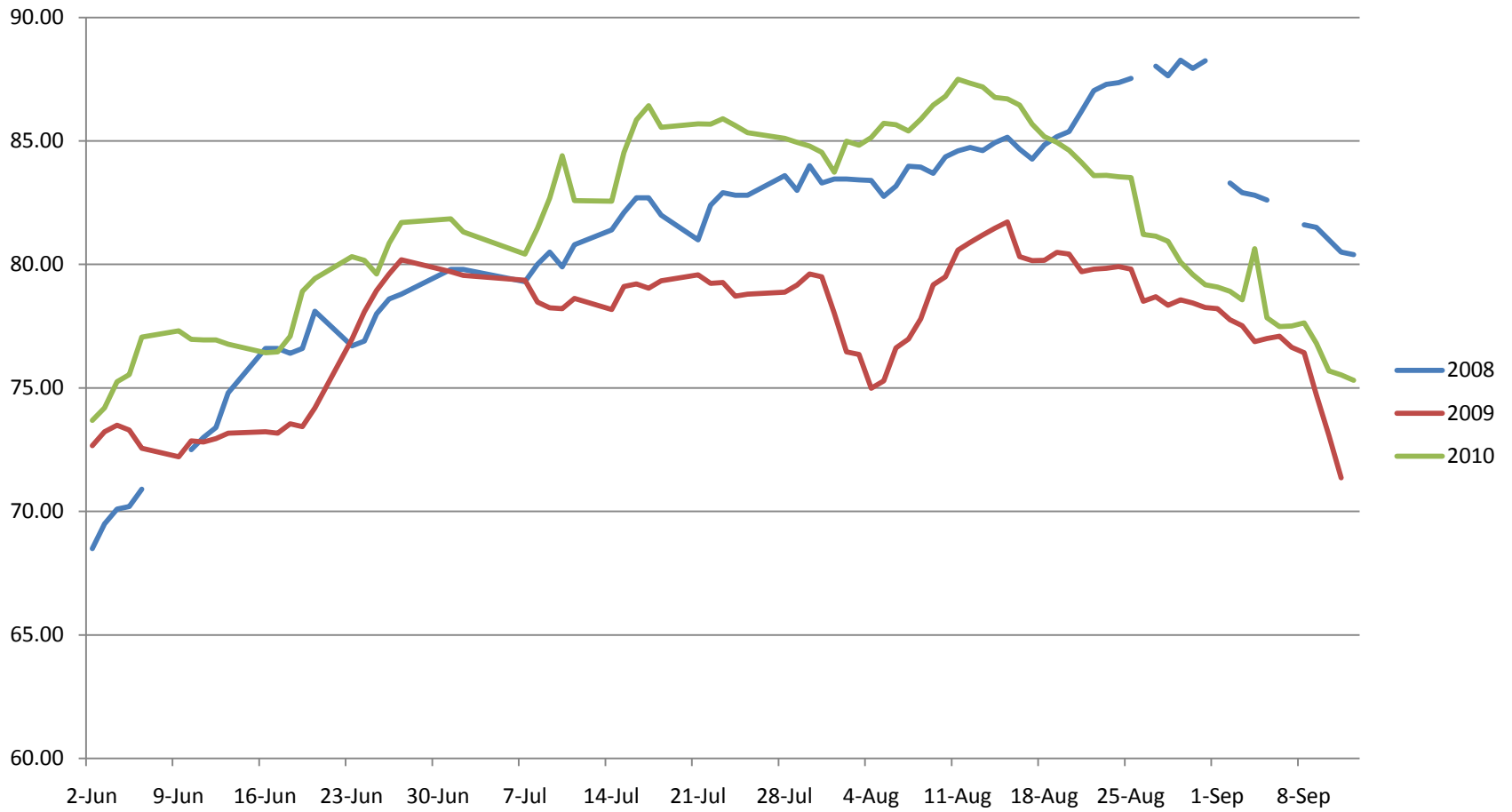
Cincinnati TP 2008-2010



Cincinnati Flow 2008-2010



Cincinnati Temp 2008-2010



Future Improvements

- Starting a database of algae related water quality problems
- Contact water utilities at beginning of summer to inform us of source water issues and for us to inform them of how we can help
 - Currently we are able to provide algae analysis and field media inquiries
- Looking into expanding our capability
 - Analysis of T&O compounds
 - Analysis of toxins