

## Monitoring Site Information

SWIMS Station ID	10013580
County	Waupaca
Watershed	North Branch and Mainstem Embarrass
Watershed Area	312.62 sq miles
Total Stream Miles in Watershed	488.32 miles
Downstream Waterbody	Embarrass River
Volunteer(s)	Kay Brockman-Medera

## 2014 Monitoring Results

Min TP Value	0.0428 mg/L
Max TP Value	0.125 mg/L
Median TP Value	0.0856 mg/L
No. Samples > 0.075 mg/L	3



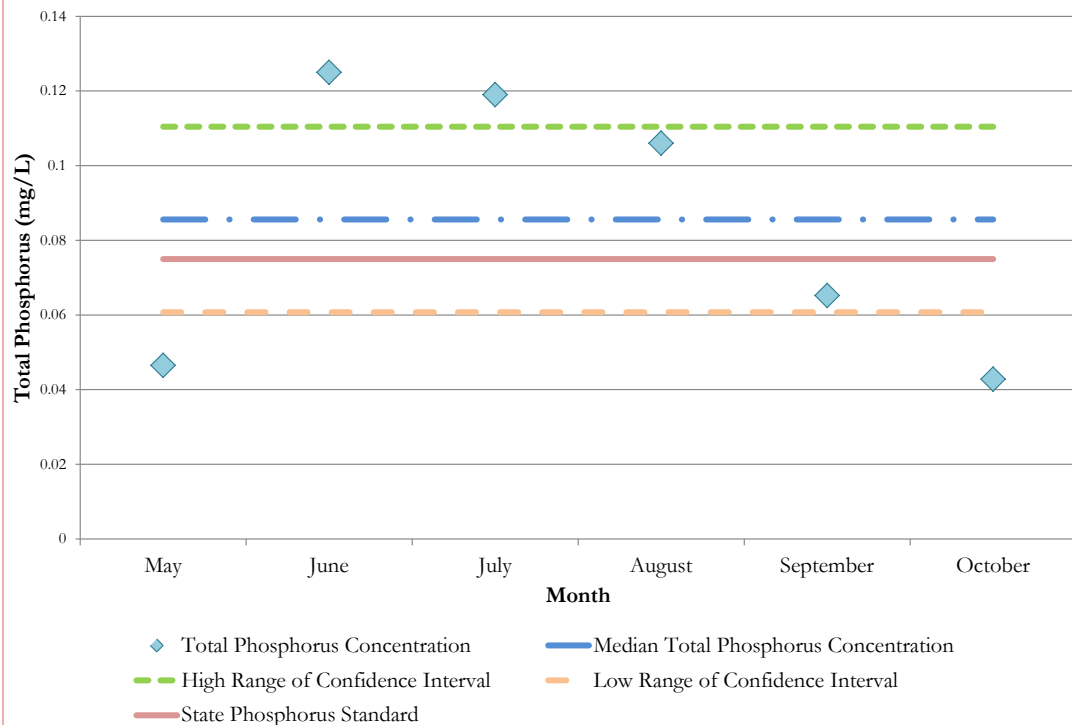
Map Legend  - Sampling Location for 2014



## Volunteer Total Phosphorus Monitoring Unnamed Creek US Walnut Road 2014 Monitoring Results

Many of Wisconsin's water quality standards require multiple visits to make an assessment decision. Every year, several stream sites are monitored and the field data collected during each visit are used to "flag" problem waters. In the next year, follow up monitoring is carried out on the "flagged" waters where the data suggest there is an impairment, but there are insufficient data to make that determination based on the State's minimum data requirements. In 2014, Water Action Volunteers stream monitors who live nearby the recommended follow up sites were asked to assist in the monitoring process by collecting water samples to be analyzed for total phosphorus at the Wisconsin State Lab of Hygiene.

### Total Phosphorus Concentration



# Why Phosphorus?

Phosphorus is an essential nutrient responsible for plant growth, but it is also the most visible, widespread water pollutant in Wisconsin lakes. Small increases in phosphorus levels in a lake can bring about substantial increases in aquatic plant and algae growth, which in turn can reduce the recreational use and aquatic biodiversity of said lake. When the excess plants die and are decomposed, oxygen levels in the water drop dramatically which can lead to fish kills.

Additionally, one of the most common impairments in Wisconsin's streams is excess sediments that cover stream bottoms. Since phosphorus moves attached to sediments, it is intimately connected with this source of pollution in our streams. Phosphorus originates naturally from rocks, but its major sources in streams and lakes today are usually associated with human activities: soil erosion, human and animal wastes, septic systems, and runoff from farmland or lawns. Phosphorus-containing contaminants from urban streets and parking lots such as food waste, detergents, and paper products are also potential sources of phosphorus pollution from the surrounding landscape. The impact that phosphorus can have in streams is less apparent than in lakes due to the overall movement of water, but in areas with slow velocity, where sediment can settle and deposit along the bottom substrate, algae blooms can result.



Photo credits to Matt Berg, David Seligman, Linda Warren, and Adrian Konell

## Volunteer Monitoring Protocol

To assess in stream phosphorus levels, WAV volunteers collected water samples that were analyzed for total phosphorus (TP) at the State Lab of Hygiene during the growing season (May through October). Following Wisconsin Department of Natural Resources (WDNR) methods, six phosphorus water samples were collected at each monitoring site - one per month for each of the six months during the growing season. The water samples were collected approximately 30 days apart and no samples were collected within 15 days of one another.

Total phosphorus impairment is assessed using the criteria in the table below.



The total phosphorus criteria is exceeded if the lower confidence limit of the sample median exceeds the state total phosphorus criteria of 0.075 mg/L.



The site is classified as Watch Waters if the median total phosphorus concentration falls within the confidence limit.



The total phosphorus criteria is met if the upper limit of the confidence interval does not exceed the state total phosphorus criteria of 0.075 mg/L.



## PROJECT PARTNERS

