Volunteer Total Phosphorus Monitoring

West Branch of Milwaukee River at CTH V

2013 Monitoring Results

Monitoring Site Information

SWIMS Station ID	10020925
County	Fond du Lac
Watershed	East and West Branches of the Milwaukee River
Watershed Area	266 sq miles
Total Stream Miles in Watershed	312.44 miles
Downstream Waterbody	Milwaukee River
Volunteer(s)	Cristal Gorsege

2013 Monitoring Results

Min TP Value	0.0613 mg/L
Max TP Value	0.194 mg/L
Median TP Value	0.10065 mg/L
No. Samples > 0.075 mg/L	5

Watch Waters

Milwaukee Riverkeeper volunteers were the first to assist with phosphorus monitoring in Wisconsin streams. They began efforts soon after the state phosphorus standards were approved, monitoring 24 stations in 2011. By 2012, they doubled the number of sites monitored. Now in 2013, total phosphorus has become an integral part of their monitoring program.

Total Phosphorus Concentration per Month

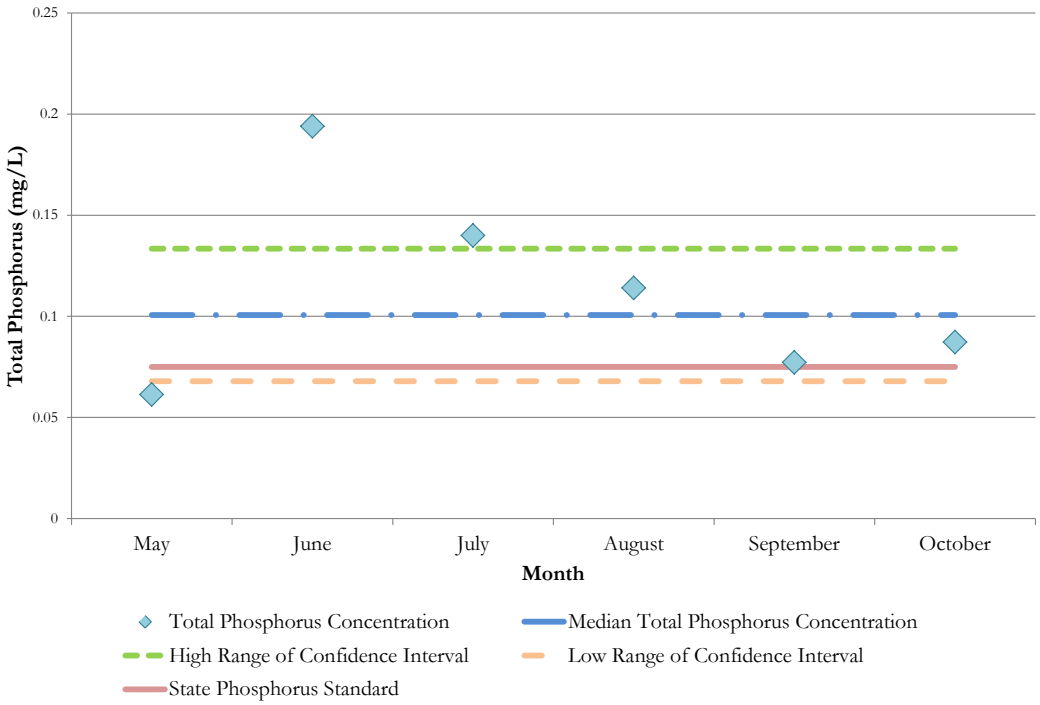

Photo credits to David Seligman, Lindsey Albright, Ray Zuelke, Dave Zelinger, and Laura DeGolier

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.

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 should have been 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.

A stream site is considered "impaired" if: 1) the lower 90% confidence limit of the sample median exceeds the criterion (see the orange dashed line on the 'Total Phosphorus Cencentration per Month' graph on the previous page) or 2) there is corroborating WDNR biological data to support an adverse response in the fish or macroinvertebrate communities. If there is insufficient data for either of these requirements, more data will need to be collected in subsequent years before an impairment decision can be made.

PROJECT PARTNERS

WISCONSIN DEPT. OF NATURAL RESOURCES

Water Action Volunteers

ENVIRONMENTAL RESOURCES CENTER

UW Extension
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