

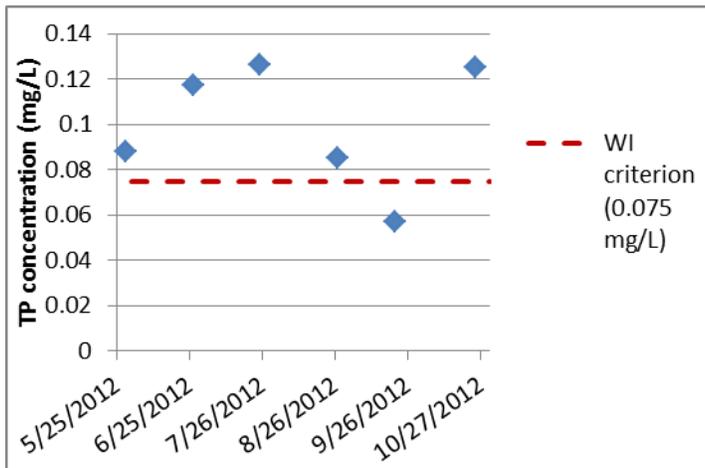
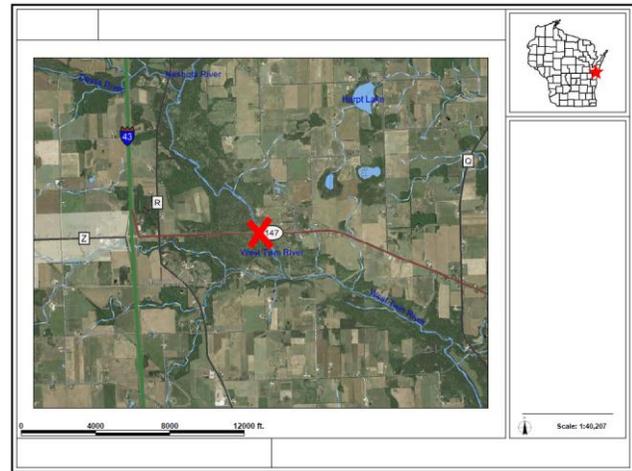
West Twin River at County Highway Z

Total phosphorus monitoring summary

May-October 2012

Volunteers: Jeremie Johnson and Denmark High students
Summary:

- 6 total phosphorus measurements taken
- Minimum: 0.057 mg/L, Maximum: 0.126 mg/L
- Notes: 5 out of 6 monthly samples exceeded the Wisconsin total phosphorus standard (0.075 mg/L), but more data are needed to confirm the stream site's placement on the impaired waters (303d) list because all six samples must exceed the standard. The May sample was flagged by the lab because the ice had melted and should be resampled in 2013¹.



Background: Phosphorus is a nutrient found at high levels in most Wisconsin lakes, where it can trigger excess algae, weed growth and fish kills. High levels of phosphorus can also affect streams, which deliver phosphorus directly to lakes. Phosphorus enters streams attached to soil particles that erode from farm fields, construction sites and other disturbed lands. Its impact in streams is less apparent than in lakes due to their movement, but in some quiet areas, the settling of sediment can result in algae blooms and reduced biological habitat. To assess streams, WAV volunteers sampled for total phosphorus (TP) concentrations during the growing season. Following Wisconsin

Department of Natural Resources (WDNR) methods², six phosphorus water samples should have been collected at each site—once per month for six months, May through October 2012, with samples collected approximately 30 days apart and with no samples collected within 15 days of one another. A stream site was considered “impaired” if: 1) all six TP samples in the same year exceeded the state criterion of 0.075 mg/L³ and 2) there were corroborating WDNR biological data to support an adverse response in the fish or macroinvertebrate communities⁴. If there were insufficient data for either of these requirements, more data will need to be collected in subsequent years before an impairment decision can be made⁵.

¹ Melting of ice was likely due to the addition of two quality control samples and extreme heat in July. Methods are being edited to include shipping in extreme conditions.

² Wisconsin 2012 Consolidated Assessment and Listing Methodology (WisCALM) for Clean Water Act Section 305(b), 314, and 303(d) Integrated Reporting, pp. 40-61. Link to WisCALM: http://dnr.wi.gov/topic/surfacewater/documents/FINAL_2012_WisCALM_04-02-12.pdf

³ Sites can be listed as “impaired” with 1-3 years of data according to the following WisCALM guidance: for one year of data, all six TP samples must exceed the Wisconsin TP criterion (0.075 mg/L). For two years of data, 10 out of 12 samples must exceed the TP criterion. For three years of data, 14 out of 18 samples must exceed the TP criterion.

⁴ The 2012 WisCALM guidance for TP impairment decisions is being discussed between staff from DNR and the U.S. Environmental Protection Agency (EPA). One unresolved issue as of the writing of this report is whether or not corroborating biological data are necessary to list a site as impaired. Current guidance requires biological confirmation.

⁵ If one or more monthly samples were missed during 2012, additional samples may be collected in subsequent years corresponding with the missed months (e.g. if July and August samples were not collected in 2012, they can be collected in 2013 to make a complete one-year dataset).