# Water Action Volunteers

## 2018 Nutrient Monitoring Program

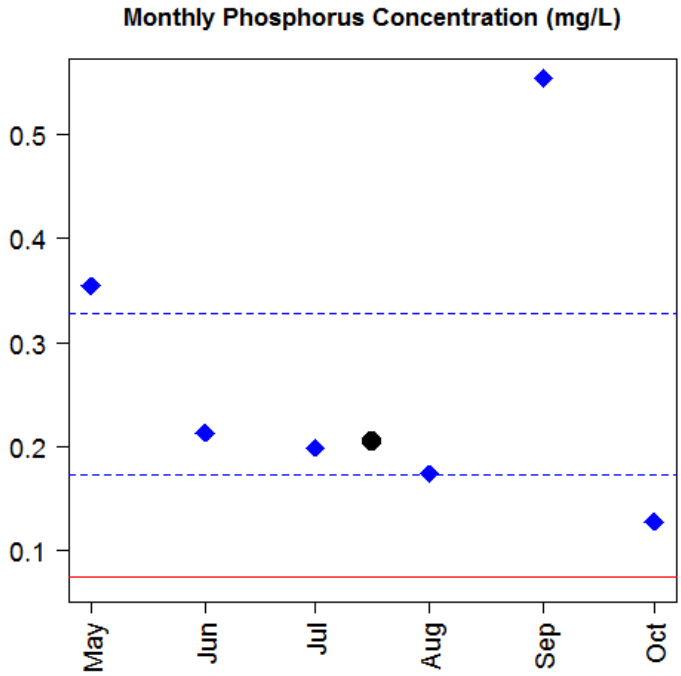
### Killsnake River at Lemke Rd

Monitored by Marilyn Starzewski

**TP Criteria Exceeded**

## Monitoring Station Quick Facts

| Station Quick Facts | | Phosphorus Data Summary | (mg/l) |
|---|---|---|---|
| **Water Body** | Killsnake River | **High Range Confidence Limit** | 0.329 |
| **SWIMS Station ID** | 363291 | **Median P Concentration** | 0.206 |
| **WBIC** | 78200 | **Low Range Confidence Limit** | 0.174 |
| **County** | Calumet | **Maximum Value** | 0.554 |
| **Watershed** | South Branch Manitowoc River | **Minimum value** | 0.128 |



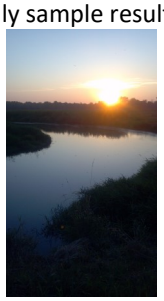
Monthly Result
Median
High Range Confidence Limit
State Standard
Low Range Confidence Limit

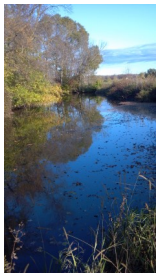
# Why Phosphorus?

Phosphorus is an essential nutrient responsible for plant growth, but it is also the most visible, widespread water pollutant in lakes. Small increases in phosphorus levels can bring about substantial increases in aquatic plant and algae growth, which in turn can reduce the recreational use and biodiversity. 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 sediment that covers 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 low 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. Following Wisconsin Department of Natural Resources (WDNR) methods, four to six phosphorus water samples were collected at each monitoring site - one per month for up to each of the six months during the growing season. The monthly water samples were collected approximately 30 days apart and no samples were collected within 15 days of one another. Samples at several sites were collected every two weeks. The monthly values are an average of the biweekly sample results.





Photos by Cynthia Alf and Marilyn Starzewski

A stream site is considered "Criteria Exceeded" if: 1) the lower 90% confidence limit of the sample median exceeds the state TP criterion of 0.075 mg/L or 0.1 mg/L 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 a decision can be made. A site is designated as "Watch Waters" if the median total phosphorus concentration falls within the confidence limit and a site is considered to have "Met Criteria" if the upper limit of the confidence interval does not exceed the criterion.

## PROJECT PARTNERS

WISCONSIN DEPT. OF NATURAL RESOURCES

WAV WATER ACTION VOLUNTEERS

ENVIRONMENTAL RESOURCES CENTER

UW Extension University of Wisconsin-Extension