

Water Quality Report for Schramm Creek at Vranes Rd.

Schramm Creek is a tributary to the White River in an area characterized by clay soils and agriculture land use. Schramm Creek does not have a trout stream* or water classification** by the State of Wisconsin. This means Schramm Creek does not have a special designation like many other streams in the White River Watershed meaning it would likely be classified as a “warmwater sport fish community” for water quality assessment purposes. The data collected from this site by BRWA volunteers will help establish baseline conditions. Future monitoring can be compared to this baseline to see if changes are occurring and whether action may be needed to address pollution sources.

Through December 2010, BRWA volunteers have collected 43 water chemistry samples over parts of six years. This site has enough data to meet BRWA’s objective of at least four years of baseline data for water chemistry. The following are water chemistry data summaries for Schramm Creek at Vranes Rd. using data through December 2010. We will be presenting Vranes Rd. data compared to other volunteer data in the Bad River Watershed at a public meeting later in 2011.

<p>*Trout Stream Classification (State of Wisconsin) Class 1: Highest quality trout waters. No stocking needed to maintain populations. Class 2: Some natural reproduction, but stocking is needed to maintain a desirable sport fishery. Class 3: No natural reproduction. Populations maintained by stocking.</p>	<p>Brook Trout <i>Salvelinus fontinalis</i></p>
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<p>**Water Classification Wisconsin’s highest quality surface waters are classified as: Outstanding Resource Waters (ORW): Highest quality waters, typically no human point sources of pollution exist, no changes in baseline water quality allowed. Exceptional Resource Waters (ERW): Similar to ORW but some human point sources of pollution exist. No changes in baseline water quality allowed.</p>

Water Chemistry Data Summary

Water chemistry results are summarized for the baseline period, which included 33 samples from parts of six years. They are summarized into seasonal averages and overall averages. The standard deviation (std. dev.) gives an idea of how much the results vary from the reported averages. The nutrient data are summarized into the percentage of total samples that exceeded the surface water benchmarks BRWA uses to evaluate these data. A description of results for each parameter and overall summary is included. If you would like more detail on how we calculate baseline, please contact Matt at (715) 682-2661.

pH: A measurement of water acidity. A pH of 7.0 is neutral. pH affects what type of organisms can live in a stream. State of Wisconsin criteria indicate natural waters must maintain a pH between 6.0 and 9.0, with no change greater than 0.5 units outside the estimated natural seasonal maximum and minimum. pH at this site generally varied between 7.0 and 8.0 across seasons. The results consistently met Wisconsin criteria, indicating good water quality.

Dissolved Oxygen: Dissolved oxygen (DO), which is critical for sustaining aquatic life, is a gas found in water. State of Wisconsin criteria states that DO content in surface waters listed as a “warmwater sport fish community” may not be artificially lowered to less than 5.0 mg/L at any time. This site met the criterion, indicating adequate oxygen levels to support a warmwater sport fish community.

Chloride and Turbidity: Chloride is a measure of salt in water. It occurs naturally but can also indicate human influences from things such as failing septic systems, road salt use, and agricultural runoff. Turbidity is a measure of sediment suspended in water, indicating areas where erosion may be a problem. Wisconsin’s chronic toxicity criterion for chloride is 395 mg/L. There is currently no criterion

for turbidity. BRWA monitoring will establish baselines for both parameters from which future data can be compared.

Chloride numbers at this site were slightly greater than we see at many other Bad River Watershed sites. However, this site has had several different volunteers collect data and results from one volunteer were greater than the rest. The most common error is to overshoot the chloride endpoint, which would give artificially high results and this appears to be the case at this site. Turbidity has been variable to date, but has generally been higher than what we typically see from sites further up in the watershed. We often see elevated turbidity at sites like this one on the Lake Superior clay plain. The results indicate sources of erosion upstream, some of which may be natural and some related to human activities. BRWA is working with partners on further understanding erosion and sedimentation issues in the Bad River watershed and determining where actions could occur to reduce them.

Nutrients: Phosphate and nitrate are nutrients critical for plant growth and occur naturally in water. Elevated nutrients may indicate pollution such as agricultural runoff, failing septic systems, and storm water runoff. Until criteria for Wisconsin’s Lake Superior region are developed, BRWA compares its data to U.S. Geological Survey (USGS) surface water benchmarks for phosphate (0.1 mg/L) and nitrate (1.0 mg/L). These benchmarks are not regulatory criteria, but they provide an indication of where nutrients may be a problem. By looking at the percent of sample events where the benchmarks are exceeded, BRWA can determine where testing with more sensitive methods may be needed.

Nutrients were not detected and do not appear to be a problem at this site.

Table 1. *Water chemistry results for Schramm Creek at Vranes Rd. Data are summarized by season and an overall average for the first four years of data.*

Season*	Site	# samples	pH	Std. Dev.	Dissolved Oxygen (mg/L)	Std. Dev.	Turbidity (JTU)	Std. Dev.	Chloride (mg/L)	Std. Dev.	Phosphate % of samples >0.1	Nitrate % of samples >1.0
Spring	Schramm at Vranes Rd.	10	7.2	0.6	9.7	1.1	14.1	8.9	13.6	8.5		
Summer	Schramm at Vranes Rd.	10	7.7	0.4	7.9	0.9	19.4	10.3	17.0	13.1		
Fall	Schramm at Vranes Rd.	10	7.6	0.5	8.6	1.2	12.4	5.8	23.0	16.6		
Winter	Schramm at Vranes Rd.	3	6.9	0.4	12.4	2.8	14.5	18.0	14.7	6.1		
Average	Schramm at Vranes Rd.	33	7.5	0.5	9.0	1.7	15.3	9.6	17.6	12.8	0%	0%

*Seasons are defined as follows: *Spring* = March, April, May; *Summer* = June, July, August; *Fall* = September, October, November; *Winter* = December, January, February; *Average* = average of all samples collected.

Conclusion

BRWA volunteer pH, DO, and nutrient data provide an indication that Schramm Creek at Vranes Rd. is capable of supporting a warmwater sport fish community. However, other issues like erosion and sedimentation may cause habitat and water temperature issues that could limit stream’s ability to support an overall healthy aquatic community. Turbidity results were often elevated at this site, so further understanding erosion and sedimentation issues in Schramm Creek will help determine what solutions may be available to reduce turbidity levels. Additional monitoring for macroinvertebrates, temperature, and habitat would give a better picture of Schramm Creek’s ability to support fish populations such as trout.

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