

Water Quality Report for Vaughn Creek at Hwy. 169

Vaughn Creek at Hwy. 169 is listed as a Class II trout stream* and has an Exceptional Resource Water classification** by the State of Wisconsin. These classifications identify Vaughn Creek at this location as one of Wisconsin's highest quality waters, with no changes in baseline water quality allowed.

The data collected from this site will help establish those 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.

***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.



Brook Trout *Salvelinus fontinalis*

To date, five macroinvertebrate samples have been collected from this site. Water chemistry and *E. coli* samples have not been collected here, but have been collected from sites further upstream on Vaughn Creek. The following is a summary of macroinvertebrate data for Vaughn Creek at Hwy. 169 using data through 2010. We will be presenting these data compared to other volunteer data in the Bad River Watershed at a public meeting later in 2011.

****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.

Macroinvertebrate Data Summary

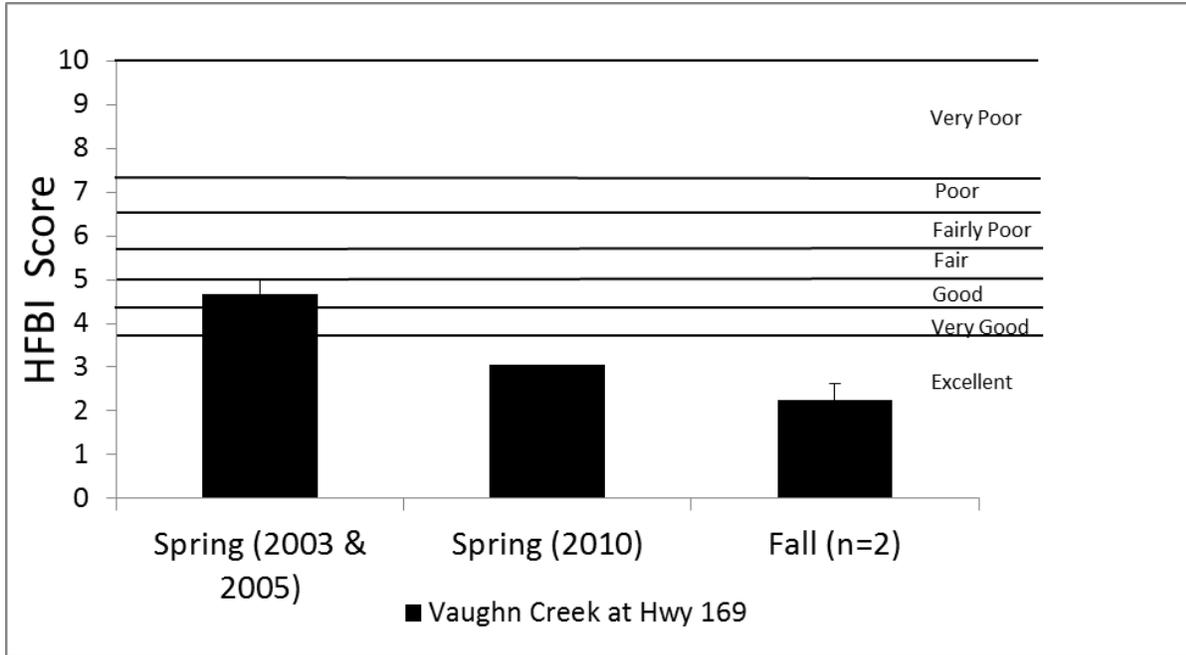
Macroinvertebrates (different types of aquatic bugs) provide important long term information about water quality in a stream because they typically spend a large part of their lives in the water and differ in their tolerance to pollution. The types of macroinvertebrates found at a site are translated into a score called the Hilsenhoff Family Biotic Index (HFBI), which allows us to interpret the macroinvertebrate data and get an idea of water quality at the site. The HFBI score can range between 0 and 10, with lower scores indicating the best water quality.

There are not enough samples from this site to meet BRWA's baseline goal of at least four years, but some assessment can be made based on available data. The first two macroinvertebrate samples from this site were collected in the spring of 2003 and 2005 and averaged an HFBI score of 4.7. This signifies "good" water quality. The spring sample collected in 2010 scored 3.1, indicating "excellent" water quality. The two fall samples collected in 2009 and 2010 averaged a score of 2.2, indicating "excellent" water quality (Graph 1).

Conclusion

The data from this site are limited, but at first glance suggest there may have been an improvement in water quality in Vaughn Creek at Hwy. 169. While the data from this site are not enough to confirm that, past BRWA volunteer water chemistry data upstream on Vaughn Creek has documented some very low dissolved oxygen levels and high bacteria counts. The Saxon Sanitary District (SSD) operates a facility that discharges treated wastewater near the headwaters of Vaughn Creek, typically in April and sometimes in fall of each year. It's possible that low dissolved oxygen levels were affecting the macroinvertebrate population measured at Hwy. 169. Continued monitoring at this site is recommended.

Graph 1. Average Hilsenhoff Family Biotic Index (HFBI, with one standard deviation) scores for spring and fall macroinvertebrate samples collected from Vaughn Creek at Hwy. 169. The lines indicate the water quality rating scores used in the HFBI.



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