

# CARPENTER CREEK POST 303D IMPAIRED WATERWAY LEVEL 3 ANALYSIS

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## Introduction

Central Wisconsin Trout Unlimited (CWTU) was asked by the WDNR, Wautoma, WI and the Waushara County Conservation Department to use their 2006 Citizen-based Monitoring Partner Program Grant to conduct a Level Three Post 303D Impaired Waterway Analysis of Carpenter Creek, Waushara County.

CWTU is a group of volunteers with a mission to conserve, protect and restore trout and salmon fisheries and their watersheds. Eight members were actively involved in the project.

Carpenter Creek is a tributary to the Pine River. It and its watershed are located entirely in Waushara County. Carpenter Creek flows in a southerly direction and is 6.0 miles in length. The creek is located in the Carpenter Creek Watershed, one of twelve that make up the Pine River/Willow Creek Watershed of the Wolf River Basin. Carpenter Creek was listed as a high priority water in the 2002 and 2004 303(d) list.



Fig. 1. Scott Provost, WDNR Water Biologist, briefing Lynn Druecke of CWTU on the Carpenter Creek project

## Materials and methods

We were asked to monitor the creek at three locations for five consecutive months starting April 18, 2007 and ending August 15, 2007 plus two storm event dates, which occurred August 21 and 24, 2007.

The protocols used for the actual monitoring were the following:

- FAMILY LEVEL BIOTIC INDEX
- LEVEL TWO WATER MONITORING
- University of Wisconsin-Stevens Point River Water Quality Monitoring Program for the following: total suspended solids, nitrate plus nitrite nitrogen, ammonium nitrogen, and total Kjeldahl nitrogen, total phosphorus, reactive phosphorus and chloride.
- Stream Flow Data using a Swoffer 2100-12 Stream Flow Meter



## Results And Conclusions

The results for the 2007 Carpenter Creek Study are still being collected and analyzed. The thermistors were pulled from the stream on 9/18/2007 and the data from these has yet to be retrieved. The final rain date results of August 24 are not back from the lab in Stevens Point. The results shown here are samples and examples of the data collected and some of the calculations done. After the data is compiled and analyzed, the DNR representatives will decide what if any actions to take.

### Stream Flow Data Sheet Example

Segment	Data Point	Width (ft)	Depth (ft)	Flow ft/sec	CFS
1	0.375	0.75	0.25	0.01	0.001875
2	0.95	0.4	0.45	0.42	0.0756
3	1.35	0.4	0.5	0.72	0.144
4	1.75	0.4	0.53	1.11	0.23532
5	2.25	0.4	0.7	1.28	0.3584
6	2.55	0.4	0.65	1.34	0.3484
7	2.95	0.4	0.57	1.44	0.3283
8	3.35	0.4	0.66	0.65	0.1716
9	3.75	0.4	0.59	0.67	0.1581
10	4.325	0.75	0.45	0.07	0.0236
<b>Total</b>		<b>4.7feet</b>			<b>1.84526</b>

## UWSP Water and Environment Analysis

### Lab

- River Water Sample Kits
- Total Suspended Solids
- NO<sub>2</sub>+NO<sub>3</sub>(N)
- Ammonium (N)
- Total Kjeldahl/Nitrogen
- Total Phosphorus
- Reactive Phosphorus
- Chloride

## Lab Data Report Form

Site	TSS	NO <sub>2</sub> +NO <sub>3</sub> (N)	Ammonium (N)	TKD	Total Phos.	Chloride
CC2	<2	2.34	<.01	1.23	0.021	2.0

Data is in mg/l

## River Package Water Sample Kit

Three Containers per Site (Surface Water Grab Samples)

- H<sub>2</sub>SO<sub>4</sub> preserved -Filtered
- H<sub>2</sub>SO<sub>4</sub> preserved -Unfiltered
- Unpreserved-Unfiltered

Refrigerated/Mailed on ice



## Carpenter Creek Family Biotic Index

Site	BI Score*	Water Quality Rating	Degree of Organic
CC1	5.59	Fair	Fairly
Substantial			
LD1	4.11	Very Good	Slight
CC2	5.02	Good	Some

\*(The Lower the BI Score the Better)

## WDNR Level Two Monitoring

Dissolved Oxygen/Water Temperature  
YSI model 550a meter

pH  
Oakton Acom Meter

Transparency  
120 centimeter transparency tube

Continuous Stream Temperature  
TidBit thermistor



## Literature cited

- Baun, Ken and Sarah Snowden. 1988. The Wisconsin Nonpoint( WIN) Model, Version 2.2 Pub No. WR-207-88
- Wis. Dept. of Natural Resources. 1995. *Nonpoint Source Control Plan for the Pine River/Willow Creek Priority Watershed Project*. Pub. No. wR-535-01
- Fassbender, Ronald L., et al. *Surface Water Resources of Waushara County*, 1970. Dept of Natural Resources.

## For further information

Please contact [druecke@sbcglobal.net](mailto:druecke@sbcglobal.net) or [rpollack@new.rr.com](mailto:rpollack@new.rr.com), if you have questions regarding this project. For questions about Level Two monitoring please contact Chris Clayton at [cclayton@wisconsinrivers.org](mailto:cclayton@wisconsinrivers.org).

## Slide 1

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**f3** frank, 09/18/2007

**f4** frank, 09/18/2007