Wisconsin Department of Natural Resources
SWIMS Project Summary

General Project Information

Project ID: Melancthon_Creek

Name: Melancthon Creek TMDL

Type: TMDL/303d Projects

Subtype: Evaluate for Delisting

Status: COMPLETE

Start Date: 4/30/2006

End Date: 10/31/2007

Purpose: Melancthon Creek flows through Vernon and Richland counties located in southwest Wisconsin. It is a tributary to the Pine River and is part of the Lower Wisconsin River Basin. The portion of the creek covering the mouth to 1 mile north of the Richland-Vernon county line is classified as a trout stream: the first 6.4 miles is listed as Class II, followed by a reach of 3.5 miles classified as Class I (WDNR 1980). The entire stream has been designated as Exceptional Resource Water (ERW) and supports some natural reproduction of Brook and Brown Trout.

In 1998, the upper segment from Highway 80 crossing at the limit of Richland and Vernon Co. to the headwaters was designated as impaired water and added to the 303(d) list due to habitat degradation caused by sediment input. The existing use of the impaired segment was warm water forage fish (Ripp et al. 2002) and did not meet the designated use (trout stream Class I). Meanwhile, the land use improvements using contour strip cropping implemented recently probably contribute to maintain more stable vegetated soils and then to reduce erosion and sediment input. Recent visits to Melancthon Creek for water quality monitoring in 2006 and 2007 showed that the exposed soil was minimal and abundant riparian vegetation was present.

Objective: The Department conducted water quality monitoring on a monthly basis in 2006 (from May to October) and 2007 (in March, and from June to August). Water samples for total suspended solid (TSS) analysis were collected and surface water temperature and pH measured with a YSI probe at station 1(Figure 1).

A macroinvertebrate survey using D-frame nets was done in November 2006 at station 2 to determine the biotic integrity (Hilsenhoff biotic index). Fish surveys were performed in May 2007 at stations 1 and 2 (Figure 1). Another fish survey was done just south of the impaired segment (nearby Walsh Creek) at stations 3 and 4 in August 2003 (Figure X). The method of electrofishing was used on a distance of 100 meters of stream for both fish surveys. The results obtained from the fish survey were used to determine the Index of Biotic Integrity (IBI) using the method developed for cold water streams (Lyons et al. 1996).

Comments:

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Outcome: The listed segment of Melancthon Creek, is a small and high gradient stream. Its watershed includes agricultural land, stretches of deciduous forest surrounding some reaches of the stream, a few habitations and two quarries located in the upper limit of the watershed (Figure 1). Observations made recently at station 1 reveal a well vegetated stream bank with no erosion and the implementation of culture rotation in the watershed (Photos 1 and 2).

The stream width at station 1 varied between 0.8 and 1.4 m and the maximum depth, from 20 and 34 cm (water quality monitoring 2006 and 2007). The stream bed of both the listed segment (stations 1 and 2) and the southern section (stations 3 and 4) of the stream is composed mainly of cobbles, gravel and sand (Table 1). This type of bottom constitutes a suitable habitat for the reproduction of salmonid species as Brook and Brown Trout.

3.2 Water quality
The TSS concentration in the Melancthon Creek was constantly low and varied between 5 and 17.8 mg/l (n=10) in 2006 and 2007. The heavy rain observed in the area the night and day before the sampling on August 14 caused only a slight increase of TSS concentration (17.8 mg/l) in the listed segment of Melancthon Creek while other streams in the same area experienced TSS concentrations as high as 362 and 546 mg/l on the same day (Little Willow Creek and Otter Creek, respectively). The water transparency depth was consistent with the low TSS with values higher than 120 cm except the measurement of 89 cm obtained on August 14, which remained fairly clear. The observations made during the fish (2003 and 2007) and the macroinvertebrate surveys (2006) also reported clear water at stations 1 to 4.

3.3 Temperature
The water temperature recorded from May 2006 to August 2007 varied between -0.2 and 21.6ºC and the maximum daily mean temperature was of 15.8ºC (Appendix A). These figures meet the guidelines for coldwater streams which refer to a maximum daily mean temperature of 22ºC and an instantaneous maximum temperature of ¬¬¬25ºC (WDNR 2004).

3.4 Macroinvertebrate community
The macroinvertebrate community was composed of a total of 20 different taxa. The caddisflies (Trichoptera) and aquatic amphipods (Amphipoda) were the most abundant (36 and 41%, respectively) (Table 2). The Hilsenhoff biotic integrity calculated from the macroinvertebrate survey was of 2.814 which correspond to a water quality rating of “excellent”, indicating no apparent organic pollution (Lillie et al. 2003).

3.5 Fish communities
The 2007 fish survey show that the fish assemblage of the upper segment of the Melancthon Creek is exclusively composed of cool and coldwater species: Brook Trout, Brown Trout and sculpins (Table3 and 4). The exclusive presence of cool and coldwater species, the low number of fish species, and the presence of Mottled Sculpin (coldwater indicator) confirm the current use of the stream by coldwater communities. The 2003 fish survey performed south of the listed segment (stations 3 and 4) show similar results.

The Brook Trout specimens captured during the 2007 survey ranged in size from 1.9 to 8.8 inches. The length distribution for the 2003 and 2007 surveys are presented in Appendix B. The five specimens of Brown Trout captured in 2007 in the listed segment measured between 5 and 9 inches. Since three year classes of brook trout are represented in the data, natural reproduction is likely taking place. This assertion is supported by the fact that the last stocking date for Melancthon Creek was in 2000. The recently collected biological data supports the designated use of Coldwater Class I for the upper segment of Melancthon Creek.

Study Design: The data available from the recent monitoring of Melancthon Creek reveal consistently low TSS concentrations which indicate low sediment input in the stream, even during a heavy rain event. The land management technique of culture rotation is likely to have contributed to the improvement of water quality conditions since the listing as impaired water in 1998. Moreover, the results from the fish and invertebrate surveys show clearly that the current aquatic life use reflects the designated use of Coldwater Class I for the upper segment of Melancthon Creek. In summary, all the information available shows clearly that Melancthon Creek is meeting its attainable use and water quality standard and for these reasons, should be removed from the 303(d) list of impaired waters for the State of Wisconsin.

QA Measures:

People

Name	Role	Status	Start Date	End Date	Organization	Comments
CLAYTON, NICOLE L	COORDINATOR	COMPLETE	4/30/2006	10/31/2014	Wisconsin DNR	
MORTON, JAMES A	TEAM_MEMBER	ACTIVE	4/30/2006		Wisconsin DNR	
VILLENEUVE, VALERIE	COORDINATOR	INACTIVE	8/15/2007		Wisconsin DNR	

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Project Statuses

Date	Reported By	Status	Comments

Actions

Action	Detailed Description	Start Date	End Date	Status
Delist Impaired Water	Melancthon Creek flows through Vernon and Richland counties located in southwest Wisconsin.The existing use of the impaired segment was warm water forage fish (Ripp et al. 2002) and did not meet the designated use (trout stream Class I). Meanwhile, the land use improvements using contour strip cropping implemented recently probably contribute to maintain more stable vegetated soils and then to reduce erosion and sediment input. Recent visits to Melancthon Creek for water quality monitoring in 2006 and 2007 showed that the exposed soil was minimal and abundant riparian vegetation was present.	4/30/2006	10/31/2007	COMPLETE

Details: Parameter	Value/Amount	Units	Comments
Total Nitrogen			
Total Phosphorus			
Total Suspended Solids			

Monitor or Propose 303(d) Listing	Melancthon Creek TMDL. The existing use of the impaired segment was warm water forage fish (Ripp et al. 2002) and did not meet the designated use (trout stream Class I). Meanwhile, the land use improvements using contour strip cropping implemented recently probably contribute to maintain more stable vegetated soils and then to reduce erosion and sediment input. Recent visits to Melancthon Creek for water quality monitoring in 2006 and 2007 showed that the exposed soil was minimal and abundant riparian vegetation was present.	4/30/2006	10/31/2007	COMPLETE

Monitoring Stations

Station ID	Name	Comments
10012302	Melancthon Creek at Hawk Lane	

Assessment Units

WBIC	Segment	Local Name	Official Name
1232200	2	Melancthon Creek	Melancthon Creek
1232200	3	Melancthon Creek	Melancthon Creek

Lab Account Codes

Account Code	Description	Start Date	End Date
WT073	TMDL MONITORING	10/1/2005	9/30/2006

Forms

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Form Code	Form Name
CONTINUOUS	Continuous Data Upload
INORGANIC	Inorganic Lab - Field Data

Methods

Method Code	Method Description
ELECTROFISHING: MULTIPLE GEAR TYPES	Electrofishing: Multiple Gear Types
MACROINVERTEBRATE BASELINE PROTOCOLS	Macroinvertebrate Baseline D-frame Kick Net 2004
DNR-FPM-SONDES2006	Multi-Parameter Continuous Meter (Sondes) Guidelines 2006
DNR-FPM-2301	Open Channel Flow Measurement 1988
DNR-FPM-2502	Temperature (Instantaneous) Digital Meter 1995
GRAB SAMPLE	Water Grab Sample Guidelines and Procedures 2005

Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
5/8/2006 13:30	COMPLETE	MCHR	10012302	Melancthon Creek at Hawk Lane
6/7/2006 11:30	COMPLETE	MCHL	10012302	Melancthon Creek at Hawk Lane
7/7/2006 12:05	COMPLETE		10012302	Melancthon Creek at Hawk Lane
7/7/2006 12:30	COMPLETE	11567819	10012302	Melancthon Creek at Hawk Lane
8/10/2006 12:05	COMPLETE		10012302	Melancthon Creek at Hawk Lane
8/10/2006 12:30	COMPLETE	11676727	10012302	Melancthon Creek at Hawk Lane
9/8/2006 11:20	COMPLETE		10012302	Melancthon Creek at Hawk Lane
10/6/2006 12:25	COMPLETE		10012302	Melancthon Creek at Hawk Lane
10/6/2006 12:40	COMPLETE	11966123	10012302	Melancthon Creek at Hawk Lane
3/23/2007 12:50	COMPLETE		10012302	Melancthon Creek at Hawk Lane
6/6/2007 14:10	COMPLETE		10012302	Melancthon Creek at Hawk Lane
7/10/2007 13:00	COMPLETE		10012302	Melancthon Creek at Hawk Lane
8/8/2007 13:35	COMPLETE		10012302	Melancthon Creek at Hawk Lane
8/14/2007 12:30	COMPLETE		10012302	Melancthon Creek at Hawk Lane

Documents

Title	Description	Author	Published	Comments
MELANCTHON CREEK 2008 IMPAIRED WATERS DATA DOCUMENTATION	Data Documentation	Villeneuve, Valérie	11/1/2007	
MELANCTHON CREEK DELISTING REPORT DATA DOCUMENTATION		Villeneuve, Valérie	11/26/2007	Decision Rationale

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MELANCTHON CREEK OERW EVALUATION	Richland Co., entire length listed and approved in code NR102 as ERW 1232200	Kerr, Roger	1/24/1989	
Melancthon Creek -Grant Final Report		Cooper	1/5/2008	
Melancthon Monitoring Project QAQC Plan			4/12/2014	

Budget

Combined Budgets:

Combined WSLH:

Combined Total: $0.00

Funding

Organization	Source	Type	Amount	Start Date	End Date