

Wisconsin Department of Natural Resources SWIMS Project Summary

General Project Information

Project ID: North_TWA_5_2018
Name: Bear and Bluff Creek Targeted Watershed Assessment, Douglas County
Type: Targeted Watershed Approach
Subtype: Evaluation (TP SSC, Stressor, Bioassess)
Status: COMPLETE
Start Date: 01/01/2018
End Date: 12/31/2019
Purpose: This project, located in North District, involved monitoring in two HUC 12 watersheds using the targeted watershed assessment approach in 2018 -- Bear Creek (a.k.a. Allouez Bay-Frontal Lake Superior) and Bluff Creek. Both of these watersheds drain into Allouez Bay. Allouez Bay water quality, sediment quality and biological communities (benthic invertebrates and fish) were monitored in 2017. Allouez Bay has high phosphorus and suspended solids concentrations, and high turbidity.

Read the Bear and Bluff Creeks Targeted Watershed Assessment: A Water Quality Plan to Restore Wisconsin Watersheds..

Water quality at the mouths of Bear and Bluff Creeks was also monitored in 2017. Both creeks have high phosphorus and suspended solids concentrations and high turbidity. Bear and Bluff Creek are on the impaired waters list due to high phosphorus concentrations. Total phosphorus (TP) concentrations as high as 987 ug/l were measured in Bluff Creek in 2017. A large cattle raising operation is present in the Bluff Creek watershed and may be a significant TP source. A rail yard at a taconite storage facility is believed to be the source of occasional iron concentration spikes observed in Bluff Creek.

Some fish and macroinvertebrate community work was previously done by DNR for both creeks in 2009-10:

- 5 sites in Bluff Creek watershed for fish
- 6 sites in Bluff Creek watershed for macroinvertebrates (4 sites with 2 years of data)
- 4 sites in the Bear Creek watershed for fish
- 4 sites in Bear Creek watershed for macroinvertebrates (2 sites with 2 years of data)

Fish IBI's were variable, ranging from poor to good. Macroinvertebrate sample MIBI ratings were good to excellent at all but one site, which was fair.

The goal of future monitoring in these two watersheds is to:

- Identify significant nutrient and sediment source areas by monitoring water quality at multiple sites affected by differing land uses. This could help direct and justify water quality improvement efforts.
- Conduct additional fish surveys to enlarge this data set.
- Monitor iron concentrations in runoff from the taconite storage facility railyard (this will depend on the ability to obtain access).

Objective: Project for Northern District TWAs. The objective was to create a complete dataset of water quality monitoring to understand watershed condition.

Comments: Proposed project for Northern District TWAs

Outcome: Proposed project for Northern District TWAs

Study Design: Proposed project for Northern District TWAs:

Water quality monitoring: 12 sites (TBD) divided between the 2 watersheds, sampled once per month, May-Oct.= 72 samples

Field parameters – temp, DO, pH, cond, turbidity

Lab parameters – E. coli (\$38), TP (\$25), TN (\$29), TSS (\$22) (\$114 per sample; E. coli testing at UW-Superior; \$76 per sample for SLOH)

Fish surveys:3 sites (TBD) for Bear Creek watershed and 2 sites (TBD)for Bluff Creek watershed.

Iron sampling at rail yard 4 iron samples @ \$50 (SLOH) = \$200

QA Measures: Standard DNR and SLOH protocols will be followed.

People

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Name	Role	Status	Start Date	End Date	Organization	Comments
AARTILA, THOMAS P	SUPERVISOR	ACTIVE	01/04/2018		Wisconsin DNR	
Helmuth, Lisa D	COORDINATOR	ACTIVE	01/01/2018	12/31/2019	Wisconsin DNR	
ROBERTS, MADELINE E	COORDINATOR	ACTIVE	01/01/2018	12/31/2019	Wisconsin DNR	
Roesler, Craig P	COORDINATOR	COMPLETE	01/01/2018	01/15/2020	Wisconsin DNR	

Project Statuses

Date	Reported By	Status	Comments
02/01/2018	Craig Roesler	Proposed	
01/15/2020	Lisa Helmuth	Public Comment Period	https://prodoasint.dnr.wi.gov/swims/editDocument.do?id=214892083
03/16/2020	Lisa Helmuth	Public Comment Period	

Actions

Action	Detailed Description	Start	End Date	Status
Monitor Baseline Survey		01/01/2018	12/31/2019	COMPLETE
Monitor or Assess Watershed Condition		01/01/2018	12/31/2019	COMPLETE
Monitor Watershed (Status, Sources, Impairments)		01/01/2018	12/31/2019	COMPLETE
Monitor Fish Community		01/01/2018	12/31/2019	COMPLETE
Monitor Water Quality or Sediment		01/01/2018	12/31/2019	COMPLETE
Monitor Targeted Watershed Area (TWA)		01/01/2018	12/31/2019	COMPLETE
Monitor Aquatic Biology		01/01/2018	12/31/2019	COMPLETE

Monitoring Stations

Station ID	Name	Comments
10050952	Bear Ck at CTH K	
10029779	Bear Creek NE of Hwy 2/53	
10038884	Bear Creek US of CTH Z	
10029778	Bear Creek at CTH Z	
10048234	Bear Creek upstream Hwy 2/53	
10015470	Bear Creek- Upstream City Limits Rd- Station #1	
10017177	Birch Creek at Cty Rd C	
163231	Bluff Creek - County Highway C	
10040432	Bluff Creek at City Limits Rd	
10031958	Bluff Creek at end of City Limits Road	
10030045	Bluff Creek ~500 m above Powerline behind Allouez Taconite Fac.	
10015462	Bluff Creek- Upstream Hwy Z- Station #1	
10015463	Bluff Creek- Upstream Valley Brook Rd- Station #2	
10010049	Hay Meadow Creek - Haymeadow Creek at 2nd St.	
10030050	Unnamed Trib to Bluff Creek ~200 meters above confluence off CTH A.	
10032011	Unnamed Tributary to Bluff Creek at Lyman Lake Road	
10048235	Unnamed stream at Moccasin Mike Rd	
10030043	Unnamed trib to Bear Cr. below culvert at CTH Z	
10040736	Unnamed trib to Bluff Ck 110m DS Valley Brook Rd	
10051098	Unnamed trib to Bluff Creek at Huppert Rd	
10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd	

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Station ID	Name	Comments
10050949	Unnamed tributary to Bluff Ck at CTH C near Pine St.	
10050950	Unnamed tributary to Bluff Ck at CTH C near Windmill Rd	
10050951	Unnamed tributary to Bluff Ck at unnamed road	

Assessment Units

WBIC	Segment	Local Name	Official Name
1409800	1	Hay Meadow Creek	Hay Meadow Creek
2833200	1	Bluff Creek	Bluff Creek
2833400	1	Unnamed	Unnamed
2833500	1	Birch Creek	Birch Creek
2833900	1	Unnamed Stream	Unnamed
2834200	1	Unnamed Stream	Unnamed
2834300	1	Unnamed Stream	Unnamed
2834600	1	Bear Creek	Bear Creek
2834700	1	Unnamed	Unnamed
2834800	1	Local Water	Unnamed
2835100	1	Unnamed	Unnamed

Lab Account Codes

Account Code	Description	Start Date	End Date
WQ002	TARGETED WATERSHED ASSESSMENTS	01/01/2018	12/31/2019

Forms

Form Code	Form Name
FIELD CHEMISTRY FO	Field Chemistry Form
FISH ASSEMBLAGE 20	Fish Assemblage 2018
CBSM-TEST	Macroinvertebrate Field Data
QUAL_FISH_HAB_LES	Qualitative Fish Habitat Less Than 10 M
QUAL_FISH_HAB_MOI	Qualitative Fish Habitat More Than 10 M
STREAM_CHAR	Stream Characteristics Form (Qualitative Habitat) (form 3600-183 Back)
STREAM_MON	Stream Monitoring (Temp, DO, Trans, Flow)
WAV_BI	WAV Citizen Monitoring Biotic Index

Methods

Method Code	Description
DNR-FPM-2201	Conductivity Instantaneous Field Meters 1993
DNR-FPM 2101 DISSOLVED OXYGEN METERS	Dissolved Oxygen Meters
ELECTROFISHING: BACKPACK SHOCKER	Electrofishing: Backpack Shocker
DNR-FPM-SONDES2006	Multi-Parameter Continuous Meter Guidelines 2006
NUTRIENT SAMPLING STREAMS 2015	Nutrient Sampling SOPs (3.2) WQ Monitoring 2015
DNR-FPM 1001.3 BENTHIC INVERTEBRATE SAMPLING - D-FRAME NET, KICK SAMPLES	Stream Sampling Methods
GRAB SAMPLE PROCEDURES USEPA WATERSHED PILOT	USEPA Watershed Pilot - Grab Samples 2011
GRAB SAMPLE	Water Grab Sample Guidelines and Procedures 2005

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Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
05/22/2018 09:00	COMPLETE	BE-12	10048234	Bear Creek upstream Hwy 2/53
05/22/2018 09:00	COMPLETE	BE-12	10048234	Bear Creek upstream Hwy 2/53
05/22/2018 09:15	COMPLETE	BE-11	10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd
05/22/2018 09:15	COMPLETE	BE-11	10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd
05/22/2018 10:00	COMPLETE	BL-1	10040432	Bluff Creek at City Limits Rd
05/22/2018 10:00	COMPLETE	BL-1	10040432	Bluff Creek at City Limits Rd
05/22/2018 10:15	COMPLETE	BE-9	10038884	Bear Creek US of CTH Z
05/22/2018 10:15	COMPLETE	BE-9	10038884	Bear Creek US of CTH Z
05/22/2018 10:30	COMPLETE	BE-10	10030043	Unnamed trib to Bear Cr. below culvert at CTH Z
05/22/2018 10:30	COMPLETE	BE-10	10030043	Unnamed trib to Bear Cr. below culvert at CTH Z
05/22/2018 10:50	COMPLETE	BE-8	10050952	Bear Ck at CTH K
05/22/2018 11:10	COMPLETE	BL-6	10017177	Birch Creek at Cty Rd C
05/22/2018 11:30	COMPLETE	BE-8	10050952	Bear Ck at CTH K
05/22/2018 11:30	COMPLETE	BL-7	10051098	Unnamed trib to Bluff Creek at Huppert Rd
05/22/2018 11:30	COMPLETE	BL-7	10051098	Unnamed trib to Bluff Creek at Huppert Rd
05/22/2018 11:45	COMPLETE	BL-5	10050950	Unnamed tributary to Bluff Ck at CTH C near Windmill Rd
05/22/2018 11:45	COMPLETE	BL-5	10050950	Unnamed tributary to Bluff Ck at CTH C near Windmill Rd
05/22/2018 11:45	COMPLETE	BL-6	10017177	Birch Creek at Cty Rd C
05/22/2018 12:00	COMPLETE	BL-4	163231	Bluff Creek - County Highway C
05/22/2018 12:05	COMPLETE	BL-4	163231	Bluff Creek - County Highway C
05/22/2018 12:15	COMPLETE	BL-3	10050949	Unnamed tributary to Bluff Ck at CTH C near Pine St.
05/22/2018 12:15	COMPLETE	BL-3	10050949	Unnamed tributary to Bluff Ck at CTH C near Pine St.
05/22/2018 12:40	COMPLETE	BL-2	10040736	Unnamed trib to Bluff Ck 110m DS Valley Brook Rd
05/22/2018 12:45	COMPLETE	BL-2	10040736	Unnamed trib to Bluff Ck 110m DS Valley Brook Rd
06/12/2018 09:20	COMPLETE	BE-11	10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd
06/12/2018 09:20	COMPLETE	BE-11	10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd
06/12/2018 09:40	COMPLETE	BE-12	10048234	Bear Creek upstream Hwy 2/53
06/12/2018 09:40	COMPLETE	BE-12	10048234	Bear Creek upstream Hwy 2/53
06/12/2018 10:00	COMPLETE	BL-1	10040432	Bluff Creek at City Limits Rd
06/12/2018 10:00	COMPLETE	BL-110040432	10040432	Bluff Creek at City Limits Rd
06/12/2018 10:25	COMPLETE	BE-9	10038884	Bear Creek US of CTH Z
06/12/2018 10:45	COMPLETE	BE-10	10030043	Unnamed trib to Bear Cr. below culvert at CTH Z
06/12/2018 10:45	COMPLETE	BE-10	10030043	Unnamed trib to Bear Cr. below culvert at CTH Z
06/12/2018 11:00	COMPLETE	BE-8	10050952	Bear Ck at CTH K
06/12/2018 11:00	COMPLETE	BE-8	10050952	Bear Ck at CTH K
06/12/2018 11:10	COMPLETE	BL-6	10017177	Birch Creek at Cty Rd C
06/12/2018 11:10	COMPLETE	BL-6	10017177	Birch Creek at Cty Rd C
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06/12/2018 12:05	COMPLETE	BL-4	163231	Bluff Creek - County Highway C
06/12/2018 12:20	COMPLETE	BL-3	10050949	Unnamed tributary to Bluff Ck at CTH C near Pine St.
06/12/2018 12:20	COMPLETE	BL-3	10050949	Unnamed tributary to Bluff Ck at CTH C near Pine St.
06/12/2018 12:40	COMPLETE	BL-2	10040736	Unnamed trib to Bluff Ck 110m DS Valley Brook Rd
06/12/2018 12:40	COMPLETE	BL-2	10040736	Unnamed trib to Bluff Ck 110m DS Valley Brook Rd
06/27/2018	COMPLETE		10048235	Unnamed stream at Moccasin Mike Rd

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Start Date	Status	Field ID	Station ID	Station Name
06/27/2018	COMPLETE		10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd
06/27/2018	COMPLETE		10030043	Unnamed trib to Bear Cr. below culvert at CTH Z
07/06/2018	COMPLETE		10029779	Bear Creek NE of Hwy 2/53
07/09/2018	COMPLETE		10031958	Bluff Creek at end of City Limits Road
07/26/2018 09:20	COMPLETE	BE-11	10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd
07/26/2018 09:40	COMPLETE	BE-12	10048234	Bear Creek upstream Hwy 2/53
07/26/2018 10:00	COMPLETE	BE-11	10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd
07/26/2018 10:00	COMPLETE	BL-1	10040432	Bluff Creek at City Limits Rd
07/26/2018 10:10	COMPLETE	BE-12	10048234	Bear Creek upstream Hwy 2/53
07/26/2018 10:25	COMPLETE	BE-9	10038884	Bear Creek US of CTH Z
07/26/2018 10:30	COMPLETE	BL-1	10040432	Bluff Creek at City Limits Rd
07/26/2018 10:45	COMPLETE	BE-10	10030043	Unnamed trib to Bear Cr. below culvert at CTH Z
07/26/2018 11:00	COMPLETE	BE-8	10050952	Bear Ck at CTH K
07/26/2018 11:00	COMPLETE	BE-9	10038884	Bear Creek US of CTH Z
07/26/2018 11:10	COMPLETE	BL-6	10017177	Birch Creek at Cty Rd C
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07/26/2018 11:45	COMPLETE	BL-5	10050950	Unnamed tributary to Bluff Ck at CTH C near Windmill Rd
07/26/2018 11:45	COMPLETE	BL-6	10017177	Birch Creek at Cty Rd C
07/26/2018 11:55	COMPLETE	BL-7	10051098	Unnamed trib to Bluff Creek at Huppert Rd
07/26/2018 12:05	COMPLETE	BL-4	163231	Bluff Creek - County Highway C
07/26/2018 12:15	COMPLETE	BL-5	10050950	Unnamed tributary to Bluff Ck at CTH C near Windmill Rd
07/26/2018 12:20	COMPLETE	BL-3	10050949	Unnamed tributary to Bluff Ck at CTH C near Pine St.
07/26/2018 12:30	COMPLETE	BL-4	163231	Bluff Creek - County Highway C
07/26/2018 12:40	COMPLETE	BL-2	10040736	Unnamed trib to Bluff Ck 110m DS Valley Brook Rd
07/26/2018 12:40	COMPLETE	BL-3	10050949	Unnamed tributary to Bluff Ck at CTH C near Pine St.
07/26/2018 13:00	COMPLETE	BL-2	10040736	Unnamed trib to Bluff Ck 110m DS Valley Brook Rd
08/28/2018 09:30	COMPLETE	BE-11	10050953	Unnamed tributary to Bear Ck at Moccasin Mike Rd
08/28/2018 10:00	COMPLETE	BE-12	10048234	Bear Creek upstream Hwy 2/53
08/28/2018 10:20	COMPLETE	BL-1	10040432	Bluff Creek at City Limits Rd
08/28/2018 11:00	COMPLETE	BE-9	10038884	Bear Creek US of CTH Z
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Documents

Title	Description	Author	Published	Comments
10050953 bear creek tributary at moccasin mike road		crum,bryan	12/12/2018	
BEAR CK AT CTH K 10-31-18 (002) PHOTO	BEAR CK AT CTH K 10-31-18	Roesler, Craig	10/16/2019	
BEAR CK AT CTH Z 10-31-	BEAR CK AT CTH Z 10-31-18	Roesler, Craig	10/16/2019	

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Title	Description	Author	Published	Comments
18				
BEAR CK AT HWY 2,53 10-31-18	BEAR CK AT HWY 2,53 10-31-18	Roesler, Craig	10/16/2019	
BEAR CK TRIB AT MOCCASIN MIKE RD 10-31-18	BEAR CK TRIB AT MOCCASIN MIKE RD 10-31-18	Roesler, Craig	10/16/2019	
BEAR CREEK DURING HIGH FLOW AT HIGHWAY 2 AND 53 10-3-17	BEAR CREEK DURING HIGH FLOW AT HIGHWAY 2 AND 53 10-3-17	Roesler, Craig	10/16/2019	
BEAR CREEK WITH MODERATE FLOW AT HWY 2 AND 53 10-11-17	BEAR CREEK WITH MODERATE FLOW AT HWY 2 AND 53 10-11-17	Roesler, Craig	10/16/2019	
BEAR TRIB AT CTH Z 10-31-18	BEAR TRIB AT CTH Z 10-31-18	Roesler, Craig	10/16/2019	
Bear and Bluff Creeks Targeted Watershed Assessment: A Water Quality Plan to Restore Wisconsin Watersheds	Bear and Bluff Creeks Watershed Assessment: A Water Quality Plan to Restore Wisconsin Watersheds	Roesler, Craig and Lisa Kosmond Helmuth	12/20/2019	

Budget

Budget Description: Bear and Bluff Creek TWA budget **Start Date:** 05/01/2018 **End Date:** 06/30/2018

Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours	150	Hours	\$0.00	\$0.00	
LTE SAL	LTE Salary	100	Hours	\$16.00	\$1,600.00	
LTE FR	LTE Fringe				\$395.20	
LTE IND	LTE Indirect				\$322.62	
LTE TOT	LTE Total Cost				\$2,317.82	
SUPPLY	Supplies	4		\$30.00	\$120.00	shipping, ice
EQUIP	Equipment				\$0.00	
MILEAGE	Mileage	840	Miles	\$0.45	\$378.00	
MEAL	Meals	12	Meals	\$9.00	\$108.00	
LODGE	Lodging				\$0.00	
TRAVEL	Travel Total				\$486.00	
BUG	Bug Contracts				\$0.00	
OTHER	Other Contracts	24		\$38.00	\$912.00	
USGS	USGS Costs				\$0.00	
TOTAL	Total Cost (excludes SLOH)				\$3,835.82	

Test Code	Description	Test Group	# Planned	Unit Cost	Total Cost
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Total SLOH Lab Costs: \$0.00

Total Budget: \$3,835.82

Budget Description: Bear and Bluff Creeks TWA's **Start Date:** 07/01/2018 **End Date:** 12/31/2018

Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours	150	Hours	\$0.00	\$0.00	
LTE SAL	LTE Salary	200	Hours	\$16.00	\$3,200.00	
LTE FR	LTE Fringe				\$790.40	
LTE IND	LTE Indirect				\$645.25	

Wisconsin Department of Natural Resources SWIMS Project Summary

Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
LTE TOT	LTE Total Cost				\$4,635.65	
SUPPLY	Supplies	6		\$30.00	\$180.00	sample shipping, ice
EQUIP	Equipment				\$0.00	
MILEAGE	Mileage	1120	Miles	\$0.45	\$504.00	
MEAL	Meals	16	Meals	\$9.00	\$144.00	
LODGE	Lodging				\$0.00	
TRAVEL	Travel Total				\$648.00	
BUG	Bug Contracts				\$0.00	
OTHER	Other Contracts	48		\$38.00	\$1,824.00	UW-Superior E. coli testing
USGS	USGS Costs				\$0.00	
TOTAL	Total Cost (excludes SLOH)				\$7,287.65	

Test Code	Description	Test Group	# Planned	Unit Cost	Total Cost
Total SLOH Lab Costs:				\$0.00	
Total Budget:				\$7,287.65	

Combined Budgets:	\$11,123.47
Combined SLOH:	\$0.00
Combined Total:	\$11,123.47

Funding

Organization	Source	Type	Amount	Start Date	End Date
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