

Wisconsin Department of Natural Resources

SWIMS Project Summary

General Project Information

Project ID: SCR_11_CMP12

Name: Black Earth Creek Monitoring Project SCR_11_CMP12 (USGS # BQY43)

Type: Targeted Monitoring

Subtype: Special Project

Status: ACTIVE

Start Date: 7/1/2011

End Date: 6/30/2012

Purpose: Black Earth Creek experienced a major fish kill in 2001. Following the kill, the trout population rebounded, but then has been declining during the last couple years to about half of it's peak density. Managers suspect periodic fish kills due to manure runoff, but need to gather water quality data during storm events to confirm this suspicion. This monitoring effort will provide a real time assessment tool that will instantaneously notify resource managers when runoff conditions and chemical parameters threaten the stream with excessive nonpoint source pollution.

Objective: The overall objective of the study is to monitor long term water quality trends on BEC and attempt to determine potential water quality parameters that may lead to a decline in fish populations. Data should be collected year round and viewable via the web on a real-time basis. Discharge and water quality data will be published annually in the Wisconsin Water Science Centers annual data report. Regression equations to predict real-time water quality concentrations from water quality sonde data and water quality samples will be evaluated annually to determine the feasibility of establishing an alert system. In order to describe the water quality parameters that occur along Black Earth Creek, multiple monitoring locations are needed. For this study, four monitoring locations are proposed and can be found on figure 1. Currently there is an operating stream-gaging station (station number 05406460, February 1954 to present) on BEC downstream of South Valley Rd that is collecting water level and discharge data. An additional gage will be installed downstream of the current gage to add the additional continuous water quality monitoring sonde and automated sampling equipment. The second monitoring location includes an installation of a new gage at County Highway P for discharge, automated water quality sampling, and continuous water quality. The third and fourth monitoring locations include the installation of two remote continuous water-quality data sondes for real-time monitoring between County Highway P and the BEC streamgage at Black Earth. Potential sites include Hwy 14 below the sewage treatment plant and Scherbel Rd, below confluence of Garfoot Creek. The principle needs that the monitoring would address, as described by the Wisconsin DNR (WDNR), are to identify water chemistry conditions that may be limiting trout populations. As part of this study, a determination will be made as to the feasibility of establishing an alert system that would use real-time water chemistry parameters to indicate when stream conditions may potentially induce a fish kill. This alert system would notify the WDNR and other organizations to activate management plans to reduce the impact on the fisheries resource. This project collect and analyze water quality data sondes at two locations along BEC to help identify areas of water chemistry changes. These sites would use regressions to estimate the discharge (non-published) between the site locations and the active streamgages located on BEC. Manual EWI samples will be collected during base flow and periods of storm runoff. These samples will be used in the development of the regression analyses to predict real-time constituent concentrations from the water quality sonde data and water quality samples.

Comments: 3).Continuation of FY2010 Special Projects Project Category

Outcome: Performance Measures: 1) There are 4 sampling sites all 4 stations are currently in SWIMS and have established Stations. 2) There are automated samplers (ISCO) on site, samples are collected based on triggers of the hydrograph. The goal is to collect 50 events at each station. Total of 200 samples (NH₃, Cl, and Suspended Sediment). 3) Sampling will start the first triggering event on or after 7/1/2011 and be completed by 6/30/2012. 4) Data is entered by SLOH into appropriate database. Samples are logged into the SLOH/STORET/SWIMS databases when they are received, results are entered upon completion of testing. 5) Reporting is generated on annual water year basis by USGS. Final report will be completed 6 months after sampling is finished.

Study Design:

QA Measures:

People

Name	Role	Status	Start Date	End Date	Organization	Comments
Komiskey, Matt	INVESTIGATOR	ACTIVE	11/10/2011		USGS	

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SORGE, MICHAEL J	PROJECT_LEAD	ACTIVE	7/1/2011	6/30/2012	Wisconsin DNR	
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Project Statuses

Date	Reported By	Status	Comments
1/28/2011	MOLLI MACDONALD	Proposed	
2/6/2012	MICHAEL SORGE	Progress: 50-75% Complete	This is an on-going project. Project is in Year 2 of the water chemistry sampling. Base flow and storm event samples have been collected. Samples have been analyzed by SLOH. USGS is in the process of refining the regression analysis. The hope is to collect at least one more year of samples to try and capture some large storm event samples. Since this project has started no large storm events have been captured. USGS has provided us with annual updates on the annual sampling. The community has found the on-line water chemistry data from the YSI SONDES to be very helpful. This data has been used by citizens, trout unlimited, dane county, WDNR, and several different schools. The hope is to try and continue the WQ sampling for 2 more years.
1/4/2017	MICHAEL SORGE	Complete	This project was completed in 2012/13. Funding was not allocated for data analysis to USGS. Therefore, there was no final report or data analysis completed for this project. Funding was not approved by tech team and PMT. This project was finished and all monitoring gear was transferred to different projects in Dane County.

Project Status Detail

Answer Set: DEFAULT

Question	Answer
5. FTE Hours (Funds) Needed	
6. LTE Hours (Funds) Needed	
7. Supplies - Describe in Detail	
8. Describe Travel Needed	
9. UWSP Samples (Number)	
10. Additional Contractual dollars - Who? What? and How much?	
11. Equipment - What is needed and Why? (New Equipment, Cost?)	
12. Capital Equipment >\$5,000 - Describe needed equipment [Note: Federal funds cannot be used to purchase capital equipment].	
13. State Lab of Hygiene Analyses: Describe the number and type of parameters - See Worksheet	
14. Partner Contributions: Describe any funding provided by other DNR programs or non-DNR contributions.	
18. Regional Priority by Category (ex: Cat. 1-1st, Cat. 2-2nd)	

Actions

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Action	Detailed Description	Start Date	End Date	Status
Monitor Fish Community	This monitoring effort will provide a real time assessment tool that will instantaneously notify resource managers when runoff conditions and chemical parameters threaten the stream with excessive nonpoint source pollution	7/1/2011	6/30/2012	IN_PROGRESS

Monitoring Stations

Station ID	Name	Comments
10016038	Black Earth Cr. At Black Eart - Hwy 14 Westside Of Blackearthupstream 300 Feet First Riffle	
10010843	Black Earth Creek - Bec-9-Fire Hall To Riffle Above Lower Foot Bridge	
10034730	Black Earth Creek (LM1) US dam at inlet to small pond	
10010841	Black Earth Creek - Bec-5-Riffle Below Habitat Work To S. Valley Rd.	
10029660	Black Earth Creek - Scherbel Rd	
10014232	Black Earth Creek 40 M Downstream Of Olson Rd	
10030694	Black Earth Creek Brewery Rd Snowmobile bridge crossing	
10030695	Black Earth Creek Dwnstrm of Cross Plains WWTP at STH 14	
10009328	Black Earth Creek Upstream Kp (Cross Plains)	
10038124	Black Earth Creek above confluence at Stagecoach Rd	
133486	Black Earth Creek at Cth P	
10035030	Black Earth Creek at HWY 14	
10035032	Black Earth Creek at Park Street at Village Park	
10035031	Black Earth Creek at STH 14 Old Dam Site	
10035033	Black Earth Creek at STH 14/ Sunnyside Rd	
133398	Black Earth Creek at Town Rd At Black Earth WI	
133555	Black Earth Creek at Twin Valley Rd	
10010848	Black Earth Creek at Wooden Br. end of Jovina Rd	
10015883	Brewery - Brewery Rd.	
10016116	Brewery Creek - Cth P	
133551	Brewery Creek at Brewery Rd	
10035036	Brewery Creek at Hillpoint Rd	
10035034	Brewery Creek at STH 14	
133006	Capital Sand And Gravel Cross Plns	
10009427	Garfoot Creek At Cth Kp	
133439	Garfoot Creek at Garfoot And Observatory Rds	
10035047	Swamp Lovers Trib at Scheelee Road (3rd crossing)	

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10035048	Swamp Lovers Trib at Swamp Lover's Private Drive Bridge	
10015979	Trib. To Black Earth Creek - 25 Yds Downstream Below Hwy 14bridge Under Rr Bridge	
10015977	Unnamed Trib - Hwy 14 - Rr Trestle	
10016009	Vermont - Cth Jj.	
10016103	Vermont Cr. - 83 M Upstream Danz Property Bridge/Culvert	
10011931	Vermont Creek - Cty. Rd. Kp Bridge 150 M Upstream To Fenceline	
10012507	Vermont Creek At Michaelis Road	
10012508	Vermont Creek At Vermont Church Road	
10035049	Vermont Creek at Howery Rd/STH 78	
10035050	Vermont Creek at STH 78/ Mineral Point Rd	

Assessment Units

WBIC	Segment	Local Name	Official Name
1248400	1	Blue Mounds Creek	Blue Mounds Creek
1248600	1	Black Earth Creek	Black Earth Creek
1248600	2	Black Earth Creek	Black Earth Creek
1248600	3	Black Earth Creek	Black Earth Creek
1248600	4	Black Earth Creek	Black Earth Creek
1248600	5	Black Earth Creek	Black Earth Creek
1248600	6	Black Earth Creek	Black Earth Creek
1248800	1	Halfway Prairie Creek	Halfway Prairie Creek
1249100	1	Unnamed Stream	Unnamed
1249200	1	Vermont Creek	Vermont Creek
1249200	2	Vermont Creek	Vermont Creek
1249900	1	Garfoot Creek	Garfoot Creek
1250100	1	Local Water	Unnamed
1250200	1	Brewery Creek	Brewery Creek
1250200	2	Brewery Creek	Brewery Creek
1250200	3	Brewery Creek	Brewery Creek
5034727	1	Unnamed Stream	Unnamed

Lab Account Codes

Account Code	Description	Start Date	End Date
WT143	BLACK EARTH CREEK	5/3/2011	6/30/2012

Forms

7/25/2024

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Form Code	Form Name
INORGANIC	Inorganic Lab - Field Data
STREAM_CHAR	Stream Characteristics Form (Qualitative Habitat) (form 3600-183 Back)

Methods

Method Code	Method Description
FISH SURVEY BASELINE PROTOCOLS	Fish Survey Baseline Protocols 2004
MACROINVERTEBRATE BASELINE PROTOCOLS	Macroinvertebrate Baseline D-frame Kick Net 2004
DNR-FPM-SONDES2006	Multi-Parameter Continuous Meter (Sondes) Guidelines 2006
GRAB SAMPLE	Water Grab Sample Guidelines and Procedures 2005

Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
7/27/2011 9:30	COMPLETE	BEC4-1-S23	133398	Black Earth Creek at Town Rd At Black Earth WI
7/27/2011 13:30	COMPLETE	BEC4-2-S23	133398	Black Earth Creek at Town Rd At Black Earth WI
7/27/2011 15:30	COMPLETE	BEC4-3-S23	133398	Black Earth Creek at Town Rd At Black Earth WI
8/2/2011 10:00	COMPLETE	BEC4-20	133398	Black Earth Creek at Town Rd At Black Earth WI
8/2/2011 10:15	COMPLETE	BEC3-20	10010841	Black Earth Creek - Bec-5-Riffle Below Habitat Work To S. Valley Rd.
8/2/2011 11:10	COMPLETE	BEC2-20	10030695	Black Earth Creek Dwnstrm of Cross Plains WWTP at STH 14
8/2/2011 11:55	COMPLETE	BEC1-20	10030694	Black Earth Creek Brewery Rd Snowmobile bridge crossing
1/9/2012	COMPLETE	20120109-13-01	133555	Black Earth Creek at Twin Valley Rd
1/9/2012	COMPLETE	20120109-13-02	10035033	Black Earth Creek at STH 14/ Sunnyside Rd
1/9/2012	COMPLETE	20120109-13-03	133006	Capital Sand And Gravel Cross Plns
1/9/2012	COMPLETE	20120109-13-04	10030694	Black Earth Creek Brewery Rd Snowmobile bridge crossing
1/9/2012	COMPLETE	20120109-13-05	10016116	Brewery Creek - Cth P
1/9/2012	COMPLETE	20120109-13-06	10035036	Brewery Creek at Hillpoint Rd
1/9/2012	COMPLETE	20120109-13-07	10035048	Swamp Lovers Trib at Swamp Lover's Private Drive Bridge
1/9/2012	COMPLETE	20120109-13-08	10035047	Swamp Lovers Trib at Scheelee Road (3rd crossing)
1/9/2012	COMPLETE	20120109-13-09	10015979	Trib. To Black Earth Creek - 25 Yds Downstream Below Hwy 14bridge Under Rr Bridge
1/9/2012	COMPLETE	20120109-13-10	10029660	Black Earth Creek - Scherbel Rd
1/9/2012	COMPLETE	20120109-13-11	10030695	Black Earth Creek Dwnstrm of Cross Plains WWTP at STH 14
1/9/2012	COMPLETE	20120109-13-12	10009328	Black Earth Creek Upstream Kp (Cross Plains)
1/9/2012	COMPLETE	20120109-13-13	10010843	Black Earth Creek - Bec-9-Fire Hall To Riffle Above Lower Foot Bridge
1/9/2012	COMPLETE	20120109-13-14	10010848	Black Earth Creek at Wooden Br. end of Jovina Rd

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1/9/2012	COMPLETE	20120109-13-15	10035032	Black Earth Creek at Park Street at Village Park
1/9/2012	COMPLETE	20120109-13-16	10015883	Brewery - Brewery Rd.
1/9/2012	COMPLETE	20120109-13-17	10035034	Brewery Creek at STH 14
1/9/2012	COMPLETE	20120109-13-18	133486	Black Earth Creek at Cth P
1/9/2012	COMPLETE		10038124	Black Earth Creek above confluence at Stagecoach Rd
1/11/2012	COMPLETE	20120111-13-01	10035030	Black Earth Creek at HWY 14
1/11/2012	COMPLETE	20120111-13-02	10034730	Black Earth Creek (LM1) US dam at inlet to small pond
1/11/2012	COMPLETE	20120111-13-03	10014232	Black Earth Creek 40 M Downstream Of Olson Rd
1/11/2012	COMPLETE	20120111-13-04	10035031	Black Earth Creek at STH 14 Old Dam Site
1/11/2012	COMPLETE	20120111-13-05	10016038	Black Earth Cr. At Black Eart - Hwy 14 Westside Of Blackearthupstream 300 Feet First Riffle
1/11/2012	COMPLETE	20120111-13-06	10035032	Black Earth Creek at Park Street at Village Park
1/11/2012	COMPLETE	20120111-13-07	133398	Black Earth Creek at Town Rd At Black Earth WI
1/11/2012	COMPLETE	20120111-13-08	10010841	Black Earth Creek - Bec-5-Riffle Below Habitat Work To S. Valley Rd.
1/11/2012	COMPLETE	20120111-13-09	10016103	Vermont Cr. - 83 M Upstream Danz Property Bridge/Culvert
1/11/2012	COMPLETE	20120111-13-10	10011931	Vermont Creek - Cty. Rd. Kp Bridge 150 M Upstream To Fenceline
1/11/2012	COMPLETE	20120111-13-11	10012507	Vermont Creek At Michaelis Road
1/11/2012	COMPLETE	20120111-13-12	10016009	Vermont - Cth Jj.
1/11/2012	COMPLETE	20120111-13-13	10012508	Vermont Creek At Vermont Church Road
1/11/2012	COMPLETE	20120111-13-14	10035049	Vermont Creek at Howery Rd/STH 78
1/11/2012	COMPLETE	20120111-13-15	10035050	Vermont Creek at STH 78/ Mineral Point Rd
1/13/2012	COMPLETE	20120113-13-01	10009427	Garfoot Creek At Cth Kp
1/13/2012	COMPLETE	20120113-13-02	133439	Garfoot Creek at Garfoot And Observatory Rds
7/20/2015	COMPLETE		10016009	Vermont - Cth Jj.

Documents

Title	Description	Author	Published	Comments
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Budget

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Budget Description: Budget for Black Earth Creek Monitoring Project SCR_11_CMP12	Start Date: 7/1/2011	End Date: 6/30/2012
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Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours		Hours	\$0.00	\$0.00	
LTE SAL	LTE Salary		Hours	\$13.00	\$0.00	
LTE FR	LTE Fringe				\$0.00	
LTE IND	LTE Indirect				\$0.00	
LTE TOT	LTE Total Cost				\$0.00	
SUPPLY	Supplies				\$0.00	
MILEAGE	Mileage		Miles	\$0.72	\$0.00	
MEAL	Meals		Meals	\$9.00	\$0.00	
LODGE	Lodging				\$0.00	
TRAVEL	Travel Total				\$0.00	
BUG	Bug Contracts	4		\$165.00	\$660.00	
OTHER	Other Contracts				\$0.00	
EQUIP	Equipment				\$0.00	
USGS	USGS Costs	1		\$10,000.00	\$10,000.00	sample collection, and sonde automated sampling
TOTAL	Total Cost (excludes SLOH)				\$10,660.00	

Test Code	Description	Test Group	# Planned	Unit Cost	Total Cost
I240FLT	CHLORIDE (EPA 325.2)	INORGANIC CHEMISTRY	200	\$20.00	\$4,000.00
I440NLD	AMMONIA (AS N), DISS (EPA 350.1)	INORGANIC CHEMISTRY	200	\$25.89	\$5,178.00
I650JLT	SUSPENDED SOLIDS (EPA METHOD 160.2)	INORGANIC CHEMISTRY	200	\$18.80	\$3,760.00

Total WSLH Lab Costs: \$12,938.00
Total Budget: \$23,598.00

Combined Budgets: \$10,660.00
Combined WSLH: \$12,938.00
Combined Total: \$23,598.00

Funding					
Organization	Source	Type	Amount	Start Date	End Date