

Wisconsin Department of Natural Resources SWIMS Project Summary

General Project Information

Project ID: WCR_Winter_Manure
Name: Winter Manure Runoff Study
Type: Targeted Monitoring
Subtype:
Status: COMPLETE
Start Date: 01/22/2007
End Date: 12/31/2009
Purpose: Department staff monitored the above various flowages and their main stem tributaries to document agricultural runoff entering the flowages during active snowmelt events or winter rain events. The study design includes collecting pre-runoff data from all flowages and their main stem tributaries. Dissolved oxygen and temperature profiles in the impoundments will be conducted approximately every three weeks to document stratification prior to a runoff event. Water chemistry samples will be collected in the zone of anoxia, if found, to document water quality conditions prior to runoff. Pre-runoff sampling will consist of collecting field parameters of dissolved oxygen, pH, conductivity, temperature and turbidity. Water chemistry parameters were analyzed by the SLOH include BOD, ammonia, TP and E. coli bacteria.

During a winter runoff event, the main stem tributaries will be sampled for BOD, ammonia, TP, E. coli bacteria, dissolved oxygen, pH, conductivity and turbidity. Dissolved oxygen and temperature profiles will be conducted in the impoundments to document the development of dissolved oxygen sag that resulted from organic loading during a runoff event. If a DO sag is found in the impoundments, samples for BOD, ammonia, E. coli bacteria, pH, conductivity and turbidity will be collected.

Coliphage analysis will be completed on Big Eau Pleine River during pre and post runoff to document if e coli bacteria present are a product of human or animal waste. The Big Eau Pleine River receives discharges from several small municipalities and therefore human derived E. coli may be present at some level at the monitoring site.

Flowages include: Big Eau Pleine Flowage (Central Wisconsin Basin), Spirit Flowage (Head Waters Basin), Lake Tomah (Lower Wisconsin Basin), Runge Hollow Lake (La Crosse Bad Axe Basin), Sidie Hollow Lake (La Crosse Bad Axe Basin), Hillsboro Lake (Lower Wisconsin Basin).

Objective: Surface water monitoring will be completed on four impoundments in the WCR and one in Northern Region to document impacts from winter runoff. The flowages include:
 Big Eau Pleine Flowage (Central Wisconsin Basin)
 Spirit Flowage (Head Waters Basin)
 Lake Tomah (Lower Wisconsin Basin)
 Runge Hollow Lake (La Crosse Bad Axe Basin)
 Sidie Hollow Lake (La Crosse Bad Axe Basin)
 Hillsboro Lake (Lower Wisconsin Basin)

In addition, the main tributaries feeding each of the impoundments will be evaluated during pre and post winter runoff events.

Comments: Justification:
 Winter runoff from agricultural watersheds can deliver high concentrations of organic matter, nutrients and bacteria to surface water during mid winter snowmelt and precipitation and/or the final spring thaw. The BOD in runoff may not impact aquatic life in the streams but can exert an oxygen demand and deplete oxygen levels in a flowage under ice. Department staff in WCR believe this occurred in some flowages in the winter/spring of 2005 but could not definitively document this was due to an agricultural runoff problem. Wisconsin Valley Improvement Company (WVIC) monitors the Big Eau Pleine Flowage weekly during the winter months for the past several years. Each year they document an organic load and dissolved oxygen sag entering the flowage from the watershed. In early 2005, the sag was much worse than seen in previous years and it resulted in a partial fish kill. The watershed landuse in the Big Eau Pleine Watershed is dominated by agriculture. A similar situation was observed after a significant snow melt event in Jersey Valley Lake, an impoundment in Vernon County. This watershed is also dominated by agricultural land use and a complete fish kill of the 54 acre lake was documented. Agricultural runoff is the suspected cause in both flowages but could not be proven since pre and post winter runoff event sampling was not conducted. This problem could be more widespread than we know and this monitoring could provide information about other impoundments and help confirm the source of organic matter.

Outcome: A final summary report will be completed and shared with Department Staff, County LCDs, and WVIC. The data would be available statewide and could be used to stress the need for better winter management of manure.

Study Design:

QA Measures:

Wisconsin Department of Natural Resources SWIMS Project Summary

People

Name	Role	Status	Start Date	End Date	Organization	Comments
HAZUGA, MARK J	COORDINATOR	COMPLETE	01/22/2007		Wisconsin DNR	
HELSEL, DANIEL R	TEAM_MEMBER	COMPLETE	01/22/2007		Wisconsin DNR	
JOHNSON, BRADLEY A	TEAM_MEMBER	ACTIVE	01/22/2007		Wisconsin DNR	
KLOSIEWSKI, James M	COORDINATOR	ACTIVE	01/22/2007		Wisconsin DNR	
KOPERSKI, CYNTHIA A	COORDINATOR	ACTIVE	01/22/2007		Wisconsin DNR	

Project Statuses

Date	Reported By	Status	Comments
------	-------------	--------	----------

Actions

Action	Detailed Description	Start	End Date	Status
Monitor Targeted Area		01/22/2007	12/31/2099	PROPOSED

Monitoring Stations

Station ID	Name	Comments
633083	Bad Axe River North Fork at 1st Bridge Downstream From Esofea Park	
373098	Big Eau Pleine R 1000ft above STH 153 Br	
10007761	Coe Hollow Creek east of Hwy XX	
373366	Fenwood Creek at Hwy 153	
373209	Freeman Creek at Tn Rd Bl Halder Cf	
633123	Jersey Valley Inlet - Jersey Valley Inlet	
423126	Lake Tomah - Deep Hole	
10007763	Lemonweir River South Fork at Cth Cm	
633079	Runge Hollow Lake - Deep Hole	
10007764	Sidie Hollow Creek - 75 M Upstream From Outlet To Sidie Hollow Lake	
633129	Sidie Hollow Lake - Deep Hole	
10017179	South Branch Baraboo at Cth Q	
10007759	Spirit River - Below Confluence With Squaw Creek	
10000370	Spirit River Flowage - Spirit River Flowage ~ 5 Miles Upstream Dam	
10007762	Unnamed Creek 5-7 at Gondola Road	
10017181	West Branch Baraboo at Sebranek Road	

Assessment Units

WBIC	Segment	Local Name	Official Name
1187900	4	West Fork Kickapoo River	West Fork Kickapoo River
1288400	2	West Br Baraboo River	West Branch Baraboo River
1288400	4	West Br Baraboo River	West Branch Baraboo River
1289800	1	South Br Creek (S Br Baraboo)	South Branch Creek
1338500	3	South Fork Lemonweir River	South Fork Lemonweir River
1342100	1	Tomah Lake	Lake Tomah
1342200	1	West Trib to Lake Tomah	Unnamed
1427200	3	Big Eau Pleine River	Big Eau Pleine River
1427700	1	Freeman Creek	Freeman Creek
1427700	2	Freeman Creek	Freeman Creek
1428700	1	Fenwood Creek	Fenwood Creek

Wisconsin Department of Natural Resources SWIMS Project Summary

WBIC	Segment	Local Name	Official Name
1428700	2	Fenwood Creek	Fenwood Creek
1506500	4	Spirit River	Spirit River
1506500	5	Spirit River	Spirit River
1641200	2	Coe Hollow Creek	Coe Hollow Creek
1641400	1	Sidie Hollow Lake	Sidie Hollow Lake
1641500	1	Sidie Hollow Creek	Sidie Hollow Creek
1641700	3	North Fork Bad Axe River	North Fork Bad Axe River
1642400	1	Runge Hollow Lake	Runge Hollow Lake

Lab Account Codes

Account Code	Description	Start Date	End Date
WT082	SPECIAL PROJECTS	07/01/2006	09/30/2007
WT089	SPECIAL PROJECTS	07/01/2007	06/30/2008

Forms

Form Code	Form Name
INORGANIC	Inorganic Lab - Field Data

Methods

Method Code	Description
-------------	-------------

Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
01/30/2007 10:40	COMPLETE	CHI	10007761	Coe Hollow Creek east of Hwy XX
01/30/2007 11:15	COMPLETE	SHCI	10007764	Sidie Hollow Creek - 75 M Upstream From Outlet To Sidie Hollow Lake
01/30/2007 12:20	COMPLETE	NFBA1	633083	Bad Axe River North Fork at 1st Bridge Downstream From Esofea Park
01/30/2007 13:15	COMPLETE	WFI	633123	Jersey Valley Inlet - Jersey Valley Inlet
01/31/2007 15:00	COMPLETE	UC1	10007762	Unnamed Creek 5-7 at Gondola Road
01/31/2007 15:20	COMPLETE	SFL1	10007763	Lemonweir River South Fork at Cth Cm
03/15/2007 13:01	COMPLETE	SF5	10000370	Spirit River Flowage - Spirit River Flowage ~ 5 Miles Upstream Dam
03/15/2007 13:01	COMPLETE	SF5	10000370	Spirit River Flowage - Spirit River Flowage ~ 5 Miles Upstream Dam
03/22/2007 09:03	COMPLETE	BEP	373098	Big Eau Pleine R 1000ft above STH 153 Br
03/22/2007 09:03	COMPLETE	BEP	373098	Big Eau Pleine R 1000ft above STH 153 Br
03/22/2007 09:30	COMPLETE	FNW	373366	Fenwood Creek at Hwy 153
03/22/2007 09:30	COMPLETE	FNW	373366	Fenwood Creek at Hwy 153
03/22/2007 09:53	COMPLETE	FRC	373209	Freeman Creek at Tn Rd BI Halder Cf
03/22/2007 09:53	COMPLETE	FRC	373209	Freeman Creek at Tn Rd BI Halder Cf
03/26/2007 09:30	COMPLETE	SR1	10007759	Spirit River - Below Confluence With Squaw Creek
03/26/2007 09:30	COMPLETE	SR1	10007759	Spirit River - Below Confluence With Squaw Creek

Documents

Title	Description	Author	Published	Comments
Winter Manure Runoff Study	Winter Manure Runoff Monitoring Study	Koperski, Hazuga	06/30/2006	

Budget

Wisconsin Department of Natural Resources SWIMS Project Summary

Combined Budgets:

Combined SLOH:

Combined Total:

Funding

Organization	Source	Type	Amount	Start Date	End Date
--------------	--------	------	--------	------------	----------