Wisconsin Department of Natural Resources
SWIMS Project Summary

General Project Information

Project ID: North_TWA_1_2017

Name: Pokegama River Targeted Watershed Assessment, Douglas County

Type: Targeted Watershed Approach

Subtype: Evaluation (TP SSC, Stressor, Bioassess)

Status: COMPLETE

Start Date: 7/1/2017

End Date: 6/30/2018

Purpose: The Pokegama River watershed (HUC12 040102011602) is located in Douglas County. It flows into Pokegama Bay, which is part of the St. Louis River Estuary. The assessment included:
1. Water quality monitoring to further define nutrient, suspended sediment, and BOD loading.
2. Exploratory TP monitoring to help identify significant TP sources in the watershed, such as tributaries with heavy watershed development, groundwater discharge locations, and wastewater effluent discharges.
3. Fish surveys and macroinvertebrate samples at 6 sites.

Monitoring was conducted May through October 2017. Monitoring and report writing was conducted by Craig Roesler and Lisa Helmuth. Standard DNR protocols were followed for all monitoring.

Objective: The Pokegama River has been found to have May-Oct TP concentrations greater than 75 ug/l, Wisconsin's stream standard. The river flows into Pokegama Bay, which is part of the St. Louis River Estuary (SLRE). The estuary is in a Great Lakes Area of Concern (AOC) and is a major restoration target for WDNR and numerous other state and federal agencies.

Pokegama Bay is one of the areas with the poorest water quality (TP, TSS) in the SLRE. Sediment core analysis from Pokegama Bay has shown recent TP deposition is very high. A separate project proposed for 2017 assesses water quality and biological conditions in Pokegama Bay.

Pokegama River monitoring will dovetail with Pokegama Bay monitoring. Pokegama River monitoring provided summer nutrient loading data. BOD sampling was conducted since dissolved oxygen concentrations are known to be a problem in the upper Bay area. Also, the watershed is 50% wetland; exploratory TP sampling wad conducted to identify significant TP sources in the watershed, such as tributaries with heavy watershed development, groundwater discharge locations, and wastewater effluent discharges. This work helped target TP sources for future control.Specific information for sites to address, including the number of sampling locations, the WBIC of the water bodies to be sampled, and other relevant information, is described in the Study Design section below.

Comments:

Outcome: Provide a summary sentence describing the project outcome. Identify project deliverables.
The project will: 1. Provide information on the contribution of the Pokegama River to summer TP and TSS concentrations in Pokegama Bay. 2. Provide information on the biological condition of the Pokegama River. 3. Provide information on significant TP sources in the Pokegama River watershed. 4. Provide a more detailed assessment of the Pokegama River watershed.
A final report will be produced to assess these items.
1) No. of sample sites associated with project = 6 standard sites, plus several more exploratory TP sites TBD in the field.
2) No. of sampling events = 2 in FY17, 6 in FY18
3) Estimated date when sample collection will be complete = 10/31/2017; 2 dates of WQ samples will be in FY17 and 4 dates of WQ samples will be in FY 18.
4) Estimated date for data entry completion = 12/31/2017, except for macroinvertebrate samples which depend on the lab.
5) Estimated date of report completion = 03/30/2018
6) What data base will be used = SWIMS, FH data base
7) Who will be responsible for data entry = Craig Roesler, Madeline Roberts

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Study Design: Identify the details of your monitoring design so that the logic behind your monitoring can be understood in light of the project type and purpose.
The Pokegama River WBIC is 2844000.
An existing SWIMS site is located near the mouth of the river (Pokegama River @ Cemetery Rd, 10032640). Monthly May-Oct sampling will be done at this site for TP, TKN, NH3,NO3+2,TSS, and BOD5. Field parameters including temp, DO, conductivity, transparency, pH, and turbidity will typically be measured at all sites.
Another existing SWIMS site (Pokegama R. @ RR tracks 10037303)(an alternate nearby site may be used due to access issues) will be sampled monthly (May-Oct) for TP. Past monitoring has shown a large increase in TP between these 2 sites.
Fish surveys and macroinvertebrates samples will be done at these 2 sites and 4 additional sites TBD.
Exploratory TP sampling sites are discussed above. Sites are TBD, although the South Superior wastewater lagoon outfall will be one of the sites.

QA Measures: Identify any relevant quality assurance measures you are using.
Standard DNR protocols will be followed.

People

Name	Role	Status	Start Date	End Date	Organization	Comments
AARTILA, THOMAS P	SUPERVISOR	COMPLETE	7/1/2017	6/30/2018	Wisconsin DNR	
HAGEN, CHERIE L	COORDINATOR	COMPLETE	7/1/2017	6/30/2018	Wisconsin DNR	
Helmuth, Lisa D	COORDINATOR	INACTIVE	11/23/2019	12/28/2022	Wisconsin DNR	
ROBERTS, MADELINE E	COORDINATOR	ACTIVE	7/1/2017	6/30/2018	Wisconsin DNR	
Roesler, Craig P	PROJECT_LEAD	COMPLETE	7/1/2017	6/30/2018	Wisconsin DNR	

Project Statuses

Date	Reported By	Status	Comments
1/24/2018	Lisa Helmuth	Progress: 0-25% Complete	
3/16/2020	Lisa Helmuth	Public Comment Period	

Project Status Detail

Actions

Action	Detailed Description	Start Date	End Date	Status
Monitor Fish Community		7/1/2017	6/30/2018	PROPOSED
Monitor Targeted Watershed Area (TWA)		7/1/2017	6/30/2018	PROPOSED
Monitor Water Quality or Sediment	The assessment will include: 1. Water quality monitoring to further define nutrient, suspended sediment, and B.O.D. loading. 2. Exploratory TP monitoring to help identify significant TP sources in the watershed, such as tributaries with heavy watershed development, groundwater discharge locations, and wastewater effluent discharges. 3. Fish surveys and macroinvertebrate samples at 6 sites. Monitoring will be conducted during May through October of 2017	7/1/2017	6/30/2018	PROPOSED
Monitor or Assess Watershed Condition		7/1/2017	6/30/2018	PROPOSED
Monitor Aquatic Biology		7/1/2017	6/30/2018	PROPOSED
Monitor Watershed (Status,Sources,Impairments)		7/1/2017	6/30/2018	PROPOSED

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Monitoring Stations

Station ID	Name	Comments
10048570	Drainage across pipeline access road	
163208	Pokegama River DS Irondale Rd.	
10049414	Pokegama River DS of pipeline crossing	
10043824	Pokegama River US Barnes Road	
10037303	Pokegama River US of RR Tracks	
10032640	Pokegama River at Cemetery Rd. South Superior	
10039410	Pokegama River at Gareth Rd	
163209	Pokegama River at Pipeline X-Ing	
10048396	Pokegama River upstream of Village of Superior WW outfall	
10048569	Ravine drainage near Village of Superior WW pump station	
10048369	Surface drainage at cemetery near Pokegama R. at Cemetery Rd	
10048368	Unnamed stream at Billings Drive near STH 105	
10048367	Unnamed stream at Cemetery Rd	
10048630	Unnamed trib to Pokegama R upstream of Cemetery Rd	
10048632	Unnamed trib to Pokegama River near wastewater lagoons	
10049196	Unnamed tributary of the Pokegama River 6m US of Barnes Rd.	
10049172	Unnamed tributary to Pokegama R. 182m DS of STH 105	
10049173	Unnamed tributary to Pokegama R. 3m US Irondale Rd	
10048571	Unnamed tributary to Pokegama River upstream of pipeline	
10048366	Village of Superior wastewater ponds outfall	

Assessment Units

WBIC	Segment	Local Name	Official Name
2844000	2	Pokegema River	Pokegama River
2844200	1	Unnamed Trib. To Pokegama River T48n R14w S10/15	Unnamed
2844400	1	Unnamed Stream	Unnamed
5000690	1	Unnamed Stream	Unnamed
5000824	1	Unnamed Stream	Unnamed
5500436	1	Local Water	Unnamed

Lab Account Codes

Account Code	Description	Start Date	End Date
WQ002	TARGETED WATERSHED ASSESSMENTS	3/26/2014	12/31/2099

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Forms

Form Code	Form Name
CONTINUOUS	Continuous Data Upload
INORGANIC	Inorganic Lab - Field Data
CBSM-TEST	Macroinvertebrate Field Data
QUAL_FISH_HAB_LESS10	Qualitative Fish Habitat Less Than 10 M
QUAL_FISH_HAB_MORE10	Qualitative Fish Habitat More Than 10 M
WADEABLE_MACRO_FIELD	Wadeable Macroinvertebrate Field & Habitat Data

Methods

Method Code	Method Description
DNR-FPM-1001.3	Benthic Invertebrate D-Frame Net, Kick Samples 1988
DNR-FPM-2201	Conductivity Instantanenous Field Meters 1993
DNR-FPM-2010, D.O. METER	Dissolved Oxygen Digital Instantanenous Field Meters 1995
DNR-FPM 2101 DISSOLVED OXYGEN METERS	Dissolved Oygen Meters
ELECTROFISHING: BACKPACK SHOCKER	Electrofishing: Backpack Shocker
ELECTROFISHING: STREAM SHOCKER	Electrofishing: Stream Shocker
SP-004	Electroshock Fish Survey Procedure
FISH SURVEY BASELINE PROTOCOLS	Fish Survey Baseline Protocols 2004
MACROINVERTEBRATE BASELINE PROTOCOLS	Macroinvertebrate Baseline D-frame Kick Net 2004
NUTRIENT SAMPLING STREAMS 2015	Nutrient Sampling SOPs (3.2) WQ Monitoring 2015
GRAB SAMPLE	Water Grab Sample Guidelines and Procedures 2005
DNR-FPM-2001, PH METERS	pH Digital Instantaneous Field Meters 1993

Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
5/11/2017 12:30	COMPLETE	PO-US	10048396	Pokegama River upstream of Village of Superior WW outfall
5/17/2017 11:45	COMPLETE	CEM-4	10048369	Surface drainage at cemetery near Pokegama R. at Cemetery Rd
5/17/2017 12:15	COMPLETE	CD-6	10048367	Unnamed stream at Cemetery Rd
5/17/2017 12:30	COMPLETE	BPS-5	10048368	Unnamed stream at Billings Drive near STH 105
5/18/2017	COMPLETE	VSO-4	10048366	Village of Superior wastewater ponds outfall
6/1/2017	COMPLETE	UN-12	10048571	Unnamed tributary to Pokegama River upstream of pipeline
6/1/2017 10:00	COMPLETE	RD-10	10048569	Ravine drainage near Village of Superior WW pump station

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6/1/2017 11:00	COMPLETE	DP-11	10048570	Drainage across pipeline access road
6/6/2017 13:15	COMPLETE	PO-6	10048396	Pokegama River upstream of Village of Superior WW outfall
6/14/2017 12:15	COMPLETE	PO-US	10048396	Pokegama River upstream of Village of Superior WW outfall
6/20/2017 11:00	COMPLETE	UT-1S	10048630	Unnamed trib to Pokegama R upstream of Cemetery Rd
6/20/2017 11:15	COMPLETE	UT-1N	10048630	Unnamed trib to Pokegama R upstream of Cemetery Rd
6/20/2017 13:30	COMPLETE	UNP-3	10048571	Unnamed tributary to Pokegama River upstream of pipeline
6/20/2017 14:00	COMPLETE	UO-4	10048632	Unnamed trib to Pokegama River near wastewater lagoons
9/5/2017 10:00	COMPLETE	POG-1	10039410	Pokegama River at Gareth Rd
9/6/2017 10:00	COMPLETE	POI-2	163208	Pokegama River DS Irondale Rd.
9/6/2017 12:30	COMPLETE	POB-3	10043824	Pokegama River US Barnes Road
9/8/2017 10:00	COMPLETE	PT105-1	10049172	Unnamed tributary to Pokegama R. 182m DS of STH 105
9/8/2017 13:00	COMPLETE	PTI-2	10049173	Unnamed tributary to Pokegama R. 3m US Irondale Rd
9/14/2017 10:00	COMPLETE	PTB-1	10049196	Unnamed tributary of the Pokegama River 6m US of Barnes Rd.
9/14/2017 12:30	COMPLETE	PO-2	10032640	Pokegama River at Cemetery Rd. South Superior
9/14/2017 13:30	COMPLETE	PUS-3	10048396	Pokegama River upstream of Village of Superior WW outfall
9/14/2017 14:00	COMPLETE	VSO-4	10048366	Village of Superior wastewater ponds outfall
10/11/2017 12:30	COMPLETE	PO-US	10048396	Pokegama River upstream of Village of Superior WW outfall
10/11/2017 12:45	COMPLETE	VSO-1	10048366	Village of Superior wastewater ponds outfall
10/13/2017	COMPLETE	20171013-16-01	10049196	Unnamed tributary of the Pokegama River 6m US of Barnes Rd.
10/13/2017	RECEIVED	20171013-16-02	10043824	Pokegama River US Barnes Road
10/13/2017	COMPLETE	20171013-16-03	10049173	Unnamed tributary to Pokegama R. 3m US Irondale Rd
10/13/2017	RECEIVED	20171013-16-04	163208	Pokegama River DS Irondale Rd.
10/13/2017	COMPLETE	20171013-16-05	10049172	Unnamed tributary to Pokegama R. 182m DS of STH 105
11/2/2017	COMPLETE	20171102-16-01	10039410	Pokegama River at Gareth Rd
11/2/2017	COMPLETE	20171102-16-02	10048396	Pokegama River upstream of Village of Superior WW outfall
11/6/2017 10:30	COMPLETE	PO-PETRO	10032640	Pokegama River at Cemetery Rd. South Superior
12/4/2017 9:15	COMPLETE	US-1	163209	Pokegama River at Pipeline X-Ing
12/4/2017 9:30	COMPLETE	DS-2	10049414	Pokegama River DS of pipeline crossing

Documents

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Title	Description	Author	Published	Comments
2016 Total Phosphorus Monitoring Report - Pokegama Creek - Downstream Of 25th Street_ Nearhardscrabble Quarry Operation_ Approx 50 Meters	Many of WisconsinÂs water quality standards require multiple visits to make an impairment decision. Every year, several streams sites are monitored, and the field data collected during each visit is used to ÂflagÂ problem waters. The following year, follow up monitoring is conducted at sites where our data suggests that there might be an impairment, but we do not have the minimum data requirements to make an impairment decisions based on WisCALM guidance.	Ilana Haimes	1/10/2017	
POKEGAMA RIVER TRIBUTARY, DOUGLAS COUNTY, VILLAGE OF SUPERIOR WWTP USE DESIGNATION	Pokegama River Tributary, Douglas County, Village of Superior WWTP Use Designation File, Multiple Authors, NOR Region, Biological Data, Chemical Data, Physical Data, Map, Photos and Field Forms	Bub, Laura	10/1/2003	
POKEGAMA RIVER UNNAMED TRIBUTARY, DOUGLAS COUNTY, DULUTH RAILROAD WWTP USE DESIGNATION	Pokegama River Unnamed Tributary, Douglas County, Duluth Railroad WWTP Use Designation File, Multiple Authors, Maps	Koshere, Frank J.	3/10/1981	
Pokegama Lake Boat Landing	Photo	Alex Smith	5/6/2011	
Pokegama Project Summary	Autogenerated Summary	Helmuth, Lisa	4/3/2014	
Pokegama River Targeted Watershed Assessment: A Water Quality Plan to Protect Wisconsin Watersheds	Pokegama River TWA A Water Quality Plan to Protect Wisconsin Watersheds (2020) Public Review Draft	Roesler, Craig	3/23/2020	
Pokegama River US Barnes Road, 2015, Natural Community Validation	Pokegama River US Barnes Road, 2015, Natural Community Validation	Madeline Roberts	7/10/2017	
Pokegama River, Pokegama River DS Irondale Rd., Wadeable Macroinvertebrate Field Form	Pokegama River TWA 2017-2018	Craig Roesler	10/13/2017	
Pokegama River, Pokegama River US Barnes Road, Wadeable Macroinvertebrate Field Form	Pokegama River TWA 2017-2018	Craig Roesler	10/13/2017	

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Pokegama River, Pokegama River at Gareth Rd, Wadeable Macroinvertebrate Field Form	Pokegama River TWA 2017-2018	Craig Roesler	11/2/2017	
Pokegama River, Pokegama River upstream of Village of Superior WW outfall, Wadeable Macroinvertebrate Field Form	Pokegama River TWA 2017-2018	Craig Roesler	11/2/2017	
Pokegama, Little Pokegama, and Red Rivers Water Quality Assessment and 303d Listing Determination		Jason Hayes	4/2/2014	
Unnamed tributary of the Pokegama River 6m US of Barnes Rd., Wadeable Macroinvertebrate Field Form	Pokegama River TWA 2017-2018	Craig Roesler	10/13/2017	
Unnamed tributary to Pokegama R. 182m DS of STH 105, Wadeable Macroinvertebrate Field Form	Pokegama River TWA 2017-2018	Craig Roesler	10/13/2017	
Unnamed tributary to Pokegama R. 3m US Irondale Rd , Wadeable Macroinvertebrate Field Form	Pokegama River TWA 2017-2018	Craig Roesler	10/13/2017	
pokegama_barnes_10043824_excel		crum, bryan	12/13/2018	
pokegama_barnes_10043824_pdf		crum, bryan	12/13/2018	
pokegama_gareth_10039410_excel		crum. bryan	12/13/2018	
pokegama_gareth_10039410_pdf		crum, bryan	12/13/2018	
pokegama_irondale_163208_excel		crum, bryan	12/13/2018	
pokegama_irondale_163208_pdf		crum, bryan	12/13/2018	
pokegama_wwlagoons_10048396_excel		crum, bryan	12/13/2018	
pokegama_wwlagoons_10048396_pdf		crum, bryan	12/13/2018	
pokegama_wwlagoons_10048396_pdf		crum, bryan	12/13/2018	

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pokegama_wwlagoons_10048396_pdf2		crum, bryan	12/13/2018	

Budget

Budget Description: FY17 budget **Start Date:** 2/1/2017 **End Date:** 6/30/2017

Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours	40	Hours	$0.00	$0.00	
LTE SAL	LTE Salary	40	Hours	$13.00	$520.00	
LTE FR	LTE Fringe				$128.44	
LTE IND	LTE Indirect				$104.85	
LTE TOT	LTE Total Cost				$753.29	
SUPPLY	Supplies	2		$40.00	$80.00	sample shipment
EQUIP	Equipment				$0.00	
MILEAGE	Mileage	600	Miles	$0.42	$252.00	
MEAL	Meals	8	Meals	$9.00	$72.00	
LODGE	Lodging				$0.00	
TRAVEL	Travel Total				$324.00	
BUG	Bug Contracts				$0.00	
OTHER	Other Contracts				$0.00	
USGS	USGS Costs				$0.00	
TOTAL	Total Cost (excludes SLOH)				$1,157.29	

Total WSLH Lab Costs: $0.00

Total Budget: $1,157.29

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Budget Description: FY18 budget for project **Start Date:** 7/1/2017 **End Date:** 6/30/2018

Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours	240	Hours	$0.00	$0.00	
LTE SAL	LTE Salary	240	Hours	$13.00	$3,120.00	
LTE FR	LTE Fringe				$770.64	
LTE IND	LTE Indirect				$629.12	
LTE TOT	LTE Total Cost				$4,519.76	
SUPPLY	Supplies	6		$40.00	$240.00	sample shipment
EQUIP	Equipment				$0.00	
MILEAGE	Mileage	1050	Miles	$0.42	$441.00	
MEAL	Meals	20	Meals	$9.00	$180.00	
LODGE	Lodging				$0.00	
TRAVEL	Travel Total				$621.00	
BUG	Bug Contracts	6		$65.00	$390.00	
OTHER	Other Contracts				$0.00	
USGS	USGS Costs				$0.00	
TOTAL	Total Cost (excludes SLOH)				$5,770.76	

Total WSLH Lab Costs: $0.00

Total Budget: $5,770.76

Combined Budgets: $6,928.05

Combined WSLH: $0.00

Combined Total: $6,928.05

Funding

Organization	Source	Type	Amount	Start Date	End Date