

**Wisconsin Department of Natural Resources
SWIMS Project Summary****General Project Information**

Project ID:	East_TWA_2_2017
Name:	East Twin River Targeted Watershed Assessment, Kewaunee County
Type:	Targeted Watershed Approach
Subtype:	Evaluation (TP SSC, Stressor, Bioassess)
Status:	COMPLETE
Start Date:	1/1/2017
End Date:	12/31/2019
Purpose:	<p>The purpose of this study was to assess overall conditions and identify areas of management in the East Twin River Watershed, focusing on the East Twin River and Unnamed Tributaries to the River as well as Krok Creek in Kewaunee County. In 2016, the Kewaunee County Board of Supervisors passed a resolution requesting DNR monitor this area, which is included in the Northeast Total Maximum Daily Load (TMDL) analysis and which hosts impaired waters with chlorides, ammonia, and chromium levels, including total phosphorus. The project results provide a contemporary status and insight into changes in water quality, habitat, and the biological communities in the watershed's upper reaches. The NE TMDL webpage provides more information. </br></p> <p>The following are key deliverables from this study:</p> <ul style="list-style-type: none">• Streams in the watershed were monitored to understand their status.• Presence and sources of impairments were identified.• Monitoring priorities for future watershed work were identified.• Management recommendations were developed.• A presentation to the Kewaunee County Board of Supervisors on the condition. <p></br></p> <p>Read the Online Report.</p>
Objective:	This targeted watershed assessment is designed to sample streams that may be impaired. The TWA provides a full suite of analyses including biological data, chemistry, and habitat data for site specific determinations of conditions as well as contemporary perspective to compare with previous monitoring conducted in 2011.
Comments:	

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Outcome: This project will result in a report describing assessments for the upper reaches of the East Twin River Watershed.

[Read the Online Report.](https://dnr.wi.gov/water/TwaPlanDetail.aspx?key=137687804)

Recommendations

This study was designed to create an updated assessment of the overall conditions of the East Twin River Watershed, including assessments of the condition of three Unnamed Tributaries (UNTs), the East Twin River and Krok Creek for ecological impairment. Assessment data from 2017 were compared to prior surveys to determine if water quality conditions have changed and if streams are meeting water quality standards. This information was shared with county experts to provide management recommendations for local activities including grants. The following are conclusions and recommendations from the 2017 assessment report:

All stream locations assessed exceed water quality criteria for phosphorus and should remain on the 303(d) impaired waters list.

Chloride, ammonia, and chromium levels in the streams are below impaired thresholds.

Water temperature in UNT 3000213 exceed water quality standards and should remain on the impaired waters list.

Ambient chronic toxicity was observed in UNT 3000213 on two occasions in 2017 (July and October). Chronic toxicity was observed on the East Twin River below the confluence with the UNT 3000211 (Station ID 104445) in June but is likely unrelated to UNT 3000213 since no toxicity was found in UNT 3000211 in June.

Macroinvertebrate monitoring confirmed fair to good water quality conditions in the East Twin River and UNTs with a slight improvement over the 2011 assessment.

Qualitative habitat assessments found mostly good to fair fish and aquatic life habitat available in Krok Creek, the East Twin River and all three UNTs.

Watershed-wide non-point sources of nutrient and sediment contributions likely impact the water quality and aquatic life habitat in Krok Creek, the East Twin River and all three UNTs and should be controlled to the extent possible.

The overall fish community in the Upper East Twin River watershed is in good to excellent condition.

The natural community of the East Twin River at CTH J (Station ID 10008204) should be updated to reflect the current fish community structure of cool-warm headwater.

- The natural community of the East Twin River at Krok Road bridge (Station ID 10020812) should be updated to reflect the current fish community structure of cool-cold headwater.

- The natural community of the UNT 3000211 at Sleepy Hollow Road (Station ID 10029040) should be updated to reflect the current fish community structure of cool-warm headwater.

Study Design: The upper reaches of the East Twin River, Unnamed Tributaries, and Krok Creek will be monitored at a total of 13 locations. Parameters include habitat assessments, aquatic toxicity (WET), continuous water temperature, invertebrates, water chemistry grab samples, and possibly fish surveys. Habitat assessments will be conducted at all 13 locations one time in the summer of 2017. Aquatic toxicity samples will be collected at 5 locations at the same time the water chemistry samples are collected. Continuous temperature monitors (HOBO's) will be installed at 6 sites for the entire 2017 summer. Macroinvertebrates will be collected at 9 locations in the fall of 2017. Water samples will be collected for chloride, total phosphorus, and ammonia monthly May through October at 8 sites. Fish surveys may be conducted by the Fisheries program staff. All data will be entered into the appropriate databases by December 31, 2018. Final report will be complete by December 31, 2018.

QA Measures: No blanks, dups or field QA other than following WDNR standard SOPs for selected parameters (see methods in project).

People

Name	Role	Status	Start Date	End Date	Organization	Comments
BENES, JOSHUA P	TEAM_MEMBER	COMPLETE	1/1/2017	12/31/2019	Wisconsin DNR	
Gansberg, Mary K	COORDINATOR	COMPLETE	1/1/2017	12/31/2019	Wisconsin DNR	
Helmuth, Lisa D	COORDINATOR	COMPLETE	1/1/2017	12/31/2019	Wisconsin DNR	
McLennan, Robin	SUPERVISOR	COMPLETE	1/1/2017	12/31/2019	Wisconsin DNR	
Perdzock, Amanda R	COORDINATOR	COMPLETE	4/4/2018	10/1/2018	Wisconsin DNR	
STEGEMANN, HOLLY A	TEAM_MEMBER	COMPLETE	10/13/2017		Wisconsin DNR	

Project Statuses

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Date	Reported By	Status	Comments
1/9/2017	Mary Gansberg	Proposed	
12/7/2017	Lisa Helmuth	Progress: 75-100% Complete	Project Writeup Underway
12/14/2017	Mary Gansberg	Progress: 75-100% Complete	All monitoring completed as planned.
4/18/2018	Mary Gansberg	Progress: 75-100% Complete	Final report completed.

Project Status Detail

Answer Set: DEFAULT

Question	Answer
1. Number of Sample Sites (Enter the station IDs if you know them).	
2. Number of Sample Events (Indicate how many trips into the field you anticipate for this project).	
3. Proposed Dates for Sample Collection	
4. List applicable databases and who will enter data?	
5. Did you receive competitive projects funding in the previous year?	
6. If yes to question 5, did you complete the projects including data entry and reports as necessary? If not, why not?	
7. Reviewer Notes: Identify questions or issues with project (use during review period)	
8. Reviewer Decision: Is this project recommended for funding?	Yes

Actions

Action	Detailed Description	Start Date	End Date	Status
Monitor or Propose 303(d) Listing	This project is designed to updated assessments for the upper reaches of the East Twin River (WBIC 84000), three Unnamed Tributaries to the East Twin River (WBIC 3000211, 3000212, 3000213), and Krok Creek to determine impairments and the current overall stream health.	1/1/2017	12/31/2019	COMPLETE

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

Monitor Targeted Watershed Area (TWA)	This project is designed to updated assessments for the upper reaches of the East Twin River (WBIC 84000), three Unnamed Tributaries to the East Twin River (WBIC 3000211, 3000212, 3000213), and Krok Creek to determine impairments and the current overall stream health.	1/1/2017	12/31/2019	COMPLETE
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Details: Parameter	Value/Amount	Units	Comments
PCBs			
Report Writeup			
Total Nitrogen			
Total Phosphorus			
Total Suspended Solids			

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Biomonitoring Toxicity Tests		1/1/2017	12/31/2019	COMPLETE
Monitor Water Quality or Sediment	This targeted watershed assessment is designed to sample streams that may be impaired. The TWA provides a full suite of analyses including biological data, chemistry, and habitat data for site specific determinations of conditions as well as contemporary perspective to compare with previous monitoring conducted in 2011.	1/1/2017	12/31/2019	COMPLETE

Monitoring Stations

Station ID	Name	Comments
104445	East Twin River	
10008206	East Twin River - East Twin River - Townline Road	
10008204	East Twin River - Hwy J	
10034445	East Twin River at CTH F first crossing east of Ellisville	
10030630	East Twin River at Krok Road	
10020812	East Twin River-75 Feet Above Bridge Off Krok Rd.	
10020787	East Twin River-Pool Area Above Bridge Off Tn. Rd. North Of Krok.	
10008203	Krok Creek - Hwy 29	
10033637	Unnamed Trib to East Twin River at Cherneyville Rd	
10030304	Unnamed Tributary to East Twin River at Hrabik Road	
10033921	Unnamed Tributary to East Twin River at stream mouth	
10029041	unnamed trib to East Twin R at Cherneyville Rd	
10029040	unnamed trib to East Twin R at Sleepy hollow	

Assessment Units

WBIC	Segment	Local Name	Official Name
84000	2	East Twin River	East Twin River
84000	3	East Twin River	East Twin River
86700	1	Krok Creek	Krok Creek
86700	2	Krok Creek	Krok Creek
3000211	1	Local Water	Unnamed
3000212	1	Unnamed Stream	Unnamed
3000213	1	Unnamed Stream	Unnamed

Lab Account Codes

Account Code	Description	Start Date	End Date
WQ015	LOCAL NEEDS PROJECTS	4/7/2016	12/31/2099

Forms

Form Code	Form Name
CONTINUOUS	Continuous Data Upload
INORGANIC	Inorganic Lab - Field Data
CBSM-TEST	Macroinvertebrate Field Data
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
FISH SURVEY BASELINE PROTOCOLS	Fish Survey Baseline Protocols 2004
FOLLOWUP_MONITORING	Followup Monitoring Study Design 2017
HABITAT SURVEY BASELINE PROTOCOLS	Habitat Baseline Survey Quantitative 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
5/8/2017 9:30	COMPLETE	ETR-1	10008204	East Twin River - Hwy J
5/8/2017 9:50	COMPLETE	ETR-2	10030630	East Twin River at Krok Road
5/8/2017 10:15	COMPLETE	ETR-3	104445	East Twin River
5/8/2017 10:40	COMPLETE	UT-4	10033921	Unnamed Tributary to East Twin River at stream mouth
5/8/2017 10:50	COMPLETE	ETR-5	10008206	East Twin River - East Twin River - Townline Road
5/8/2017 11:15	COMPLETE	KC-6	10008203	Krok Creek - Hwy 29
5/8/2017 11:40	COMPLETE	UT-7	10030304	Unnamed Tributary to East Twin River at Hrabik Road
5/8/2017 12:00	COMPLETE	UT-8	10033637	Unnamed Trib to East Twin River at Cherneyville Rd
5/9/2017 16:00	COMPLETE		10008206	East Twin River - East Twin River - Townline Road
5/9/2017 16:00	COMPLETE		10008204	East Twin River - Hwy J
5/9/2017 16:00	COMPLETE		10030630	East Twin River at Krok Road
5/9/2017 16:00	COMPLETE		10030304	Unnamed Tributary to East Twin River at Hrabik Road
5/9/2017 16:00	COMPLETE		10033637	Unnamed Trib to East Twin River at Cherneyville Rd
5/9/2017 16:00	COMPLETE		10008203	Krok Creek - Hwy 29
6/19/2017 9:45	COMPLETE	ETR-1	10008204	East Twin River - Hwy J
6/19/2017 10:00	COMPLETE	ETR-2	10030630	East Twin River at Krok Road
6/19/2017 10:30	COMPLETE	ETR-3	104445	East Twin River
6/19/2017 10:45	COMPLETE	UT-4	10033921	Unnamed Tributary to East Twin River at stream mouth
6/19/2017 11:00	COMPLETE	ETR-5	10008206	East Twin River - East Twin River - Townline Road

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6/19/2017 11:10	COMPLETE	KC-6	10008203	Krok Creek - Hwy 29
6/19/2017 11:30	COMPLETE	UT-7	10030304	Unnamed Tributary to East Twin River at Hrabik Road
6/19/2017 11:45	COMPLETE	UT-8	10033637	Unnamed Trib to East Twin River at Cherneyville Rd
7/24/2017 9:50	COMPLETE	ETR-1	10008204	East Twin River - Hwy J
7/24/2017 10:05	COMPLETE	ETR-2	10030630	East Twin River at Krok Road
7/24/2017 10:30	COMPLETE	ETR-3	104445	East Twin River
7/24/2017 10:50	COMPLETE	UT-4	10033921	Unnamed Tributary to East Twin River at stream mouth
7/24/2017 11:05	COMPLETE	ETR-5	10008206	East Twin River - East Twin River - Townline Road
7/24/2017 11:20	COMPLETE	KC-6	10008203	Krok Creek - Hwy 29
7/24/2017 11:40	COMPLETE	UT-7	10030304	Unnamed Tributary to East Twin River at Hrabik Road
7/24/2017 12:00	COMPLETE	UT-8	10033637	Unnamed Trib to East Twin River at Cherneyville Rd
8/21/2017 9:00	COMPLETE	ETR-1	10008204	East Twin River - Hwy J
8/21/2017 9:20	COMPLETE	ETR-2	10030630	East Twin River at Krok Road
8/21/2017 9:40	COMPLETE	ETR-3	104445	East Twin River
8/21/2017 9:50	COMPLETE	UT-4	10033921	Unnamed Tributary to East Twin River at stream mouth
8/21/2017 10:20	COMPLETE	ETR-5	10008206	East Twin River - East Twin River - Townline Road
8/21/2017 10:40	COMPLETE	KC-6	10008203	Krok Creek - Hwy 29
8/21/2017 10:50	COMPLETE	UT-7	10030304	Unnamed Tributary to East Twin River at Hrabik Road
8/21/2017 11:10	COMPLETE	UT-8	10033637	Unnamed Trib to East Twin River at Cherneyville Rd
9/18/2017 9:30	COMPLETE	ETR-1	10008204	East Twin River - Hwy J
9/18/2017 9:45	COMPLETE	ETR-2	10030630	East Twin River at Krok Road
9/18/2017 10:00	COMPLETE	ETR-3	104445	East Twin River
9/18/2017 10:15	COMPLETE	UT-4	10033921	Unnamed Tributary to East Twin River at stream mouth
9/18/2017 10:30	COMPLETE	ETR-5	10008206	East Twin River - East Twin River - Townline Road
9/18/2017 10:45	COMPLETE	KC-6	10008203	Krok Creek - Hwy 29
9/18/2017 11:00	COMPLETE	UT-7	10030304	Unnamed Tributary to East Twin River at Hrabik Road
9/18/2017 11:20	COMPLETE	UT-8	10033637	Unnamed Trib to East Twin River at Cherneyville Rd
10/10/2017	COMPLETE		10008203	Krok Creek - Hwy 29
10/10/2017	COMPLETE		10034445	East Twin River at CTH F first crossing east of Ellisville
10/10/2017	COMPLETE		10030304	Unnamed Tributary to East Twin River at Hrabik Road
10/10/2017	COMPLETE		104445	East Twin River
10/10/2017	COMPLETE		10008206	East Twin River - East Twin River - Townline Road
10/12/2017	COMPLETE		10029040	unnamed trib to East Twin R at Sleepy hollow
10/12/2017	COMPLETE		10029041	unnamed trib to East Twin R at Cherneyville Rd
10/12/2017	COMPLETE		10030630	East Twin River at Krok Road

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10/12/2017	COMPLETE		10008204	East Twin River - Hwy J
10/16/2017 9:30	COMPLETE	ETR-1	10008204	East Twin River - Hwy J
10/16/2017 9:50	COMPLETE	ETR-2	10030630	East Twin River at Krok Road
10/16/2017 10:08	COMPLETE	KC-6	10008203	Krok Creek - Hwy 29
10/16/2017 10:25	COMPLETE	ETR-3	104445	East Twin River
10/16/2017 10:35	COMPLETE	UT-4	10033921	Unnamed Tributary to East Twin River at stream mouth
10/16/2017 10:50	COMPLETE	ETR-5	10008206	East Twin River - East Twin River - Townline Road
10/16/2017 11:10	COMPLETE	UT-7	10030304	Unnamed Tributary to East Twin River at Hrabik Road
10/16/2017 11:30	COMPLETE	UT-8	10033637	Unnamed Trib to East Twin River at Cherneyville Rd

Documents

Title	Description	Author	Published	Comments
East Twin River 10008204	PHOTO	Holly Stegemann		
East Twin River 10008206	PHOTO	Holly Stegemann		
East Twin River 10030630	PHOTO	Holly Stegemann		
East Twin River 104445	PHOTO	Holly Stegemann		
East Twin River 104445	PHOTO	Holly Stegemann		
East Twin River 104445	PHOTO	Holly Stegemann		
East Twin River CTH F Ellisville 10034445	PHOTO	Holly Stegemann		
East Twin River CTH J 10008204	PHOTO	Holly Stegemann		
East Twin River CTH J 10008204	PHOTO	Holly Stegemann		
East Twin River CTH J 10008204 2017 Natural Community Validation	2017 Natural Community Validation for East Twin River at CTH J	Mary Gansberg	3/1/2018	
East Twin River Church Road 10020787	PHOTO	Holly Stegemann		
East Twin River Church Road 10020787	PHOTO	Holly Stegemann		
East Twin River Krok Ditch 10030630	PHOTO	Holly Stegemann		
East Twin River Krok Ditch 10030630	PHOTO	Holly Stegemann		
East Twin River Krok Rd Bridge 10020812 2015 Natural Community Validation	Natural Community Validation for East Twin River at Krok Road Bridge Station ID 10020812	Mary Gansberg	3/1/2018	
East Twin River Krok Road 10020812	PHOTO	Holly Stegemann		

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East Twin River Krok Road 10020812	PHOTO	Holly Stegemann		
East Twin River Targeted Watershed Assessment: A Report to Restore Wisconsin Watersheds, 2020	Final report of Upper East Twin River Watershed Assessment , TWA/WQ Plan Water Quality Surveys of the East Twin River (84000) and Unnamed Tributaries (3000211, 3000212, & 3000213) to the East Twin River, and Krok Creek (86700), Kewaunee County	Mary Gansberg	7/23/2020	
East Twin River Townline 10008206	PHOTO	Holly Stegemann		
East Twin River Townline 10008206	PHOTO	Holly Stegemann		
East Twin River Townline 10008206	PHOTO	Holly Stegemann		
East Twin River Watershed TWA WQ Plan Online		Gansberg, Mary	7/23/2020	
Krok Creek 10008203	PHOTO	Holly Stegemann		
Krok Creek 10008203	PHOTO	Holly Stegemann		
Krok Creek 10008203	PHOTO	Holly Stegemann		
Unnamed Tributary 10030304	PHOTO	Holly Stegemann		
Unnamed Tributary 10030304	PHOTO	Holly Stegemann		
Unnamed Tributary 10033637	PHOTO	Holly Stegemann		
Unnamed Tributary 10033637	PHOTO	Holly Stegemann		
Unnamed Tributary 10033637	PHOTO	Holly Stegemann		
Unnamed Tributary 10033921	PHOTO	Holly Stegemann		
Unnamed Tributary 10033921	PHOTO	Holly Stegemann		
Unnamed Tributary Cherneyville 10029041	PHOTO	Holly Stegemann		
Unnamed Tributary Cherneyville 10029041	PHOTO	Holly Stegemann		
Unnamed Tributary Hrabik 10030304	PHOTO	Holly Stegemann		
Unnamed Tributary Sleepy Hollow 10029040	PHOTO	Holly Stegemann		
Unnamed Tributary Sleepy Hollow 10029040	PHOTO	Holly Stegemann		

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Unnamed Tributary Sleepy Hollow 10029040	PHOTO	Holly Stegemann		
Unnamed Tributary at Sleepy Hollow Road 10029040 2017 Natural Community Validation	Natural Community Validation Unnamed Tributary to East Twin River at Sleepy Hollow Road Station ID 10029040	Mary Gansberg	3/1/2018	
Water Quality Surveys of the East Twin River (84000) and Unnamed Tributaries (3000211, 3000212, and 3000213) to the East Twin River, and Krok Creek (86700), Kewaunee County	Summary of water quality surveys in the East Twin River watershed (TK02) 2017.	Mary Gansberg	1/1/2017	

Budget

Budget Description: 2017 July-Dec. Monitoring	Start Date: 7/1/2016	End Date: 12/31/2017
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Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours	68	Hours	\$0.00	\$0.00	
LTE SAL	LTE Salary	24	Hours	\$13.00	\$312.00	
LTE FR	LTE Fringe				\$77.06	
LTE IND	LTE Indirect				\$62.91	
LTE TOT	LTE Total Cost				\$451.98	
SUPPLY	Supplies				\$0.00	
EQUIP	Equipment				\$0.00	
MILEAGE	Mileage	800	Miles	\$0.72	\$576.00	
MEAL	Meals	11	Meals	\$9.00	\$99.00	
LODGE	Lodging				\$0.00	
TRAVEL	Travel Total				\$675.00	
BUG	Bug Contracts	9		\$65.00	\$585.00	
OTHER	Other Contracts				\$0.00	
USGS	USGS Costs				\$0.00	
TOTAL	Total Cost (excludes SLOH)				\$1,711.98	

Total WSLH Lab Costs: \$0.00
Total Budget: \$1,711.98

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Budget Description: 2017 May-June monitoring	Start Date: 5/1/2017	End Date: 6/30/2017
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Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours	20	Hours	\$0.00	\$0.00	
LTE SAL	LTE Salary	16	Hours	\$13.00	\$208.00	
LTE FR	LTE Fringe				\$51.38	
LTE IND	LTE Indirect				\$41.94	
LTE TOT	LTE Total Cost				\$301.32	
SUPPLY	Supplies				\$0.00	
EQUIP	Equipment				\$0.00	
MILEAGE	Mileage	400	Miles	\$0.72	\$288.00	
MEAL	Meals	4	Meals	\$9.00	\$36.00	
LODGE	Lodging				\$0.00	
TRAVEL	Travel Total				\$324.00	
BUG	Bug Contracts			\$65.00	\$0.00	
OTHER	Other Contracts				\$0.00	
USGS	USGS Costs				\$0.00	
TOTAL	Total Cost (excludes SLOH)				\$625.32	

Total WSLH Lab Costs: \$0.00

Total Budget: \$625.32

Combined Budgets: \$2,337.29

Combined WSLH: \$0.00

Combined Total: \$2,337.29

Funding					
Organization	Source	Type	Amount	Start Date	End Date