

# Wisconsin Department of Natural Resources SWIMS Project Summary

## General Project Information

**Project ID:** CO\_1\_CMP16

**Name:** Wisconsin River BOD TMDL Pilot -CO\_1\_CMP16

**Type:** Competitive Projects

**Subtype:** TMDL Monitoring

**Status:** ACTIVE

**Start Date:** 7/1/2016

**End Date:** 6/30/2017

**Purpose:** The purpose of this pilot project is to collect data to develop dissolved oxygen model for Segment BC of the Wisconsin River.

**Objective:** The original BOD5 wasteload allocations for the Wisconsin River (WBIC 1179900) were developed in 1981 from a modeling effort that began in 1972. The wasteloads codified in s.NR 212. 60 Wis. Adm. Code have been modified four times since, with the latest change coming in 1988. The Department is required under s. NR212 to review wasteloads every 5 years and has not done so since 1988. As point sources seek additional wasteloads to increase industrial productivity and have compliance issues, the need for a dissolved oxygen new model has surfaced. A new model would redistribute the wasteload allocations while ensuring to 5mg/L DO standard is met.

The project proposes to collect the relevant background data necessary to run the EPD-RIV1 model. Data will be collected at 14 locations on the Wisconsin River and 4 continuous stationary sampling points. Additionally, effluent samples will be collected and analyzed from 7 dischargers located within segment BC. The list of proposed dischargers is listed below:

- Permittee (WPDES #)
- Brokaw WWTF (002136)
- Wausau WWTF (0025739)
- Domtar Rothschild (0026042)
- Lignotech (0003450)
- Foremost Foods (0003875)
- Rib Mountain WWTF (0035581)
- Expera-Mosinee (0003671)
- Mosinee WWTF (0022390)
- Mullins Cheese (0054127)

The final objective of this project will be to recommend the necessary data collection to create a Wisconsin River DO model from the Rhinelander Dam to the Castle Rock Dam. This data will be collected in subsequent sampling seasons.

A comprehensive sampling plan is included as a separate document.

**Comments:** New Project

The wastewater section views this activity as a high priority. The Department is required under ch. NR 212 Wis. Adm. Code to review the wasteloads every five years which has not been completed since 1988.

This is a pilot to plan a multiyear sampling project. A more comprehensive monitoring plan will be created next year. Preliminary cost estimate of sampling all three reaches of the Upper Wisconsin River is .

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**Outcome:** A working EPD-RIV1 model and report will be prepared. The model will predict dissolved oxygen concentrations along a longitudinal profile of segment BC of the Wisconsin River. The anticipated report elements will include a summary of the data collected, calibration and sensitivity analysis of sampled model parameters, and recommendations for future data collection. Future data collection will be used to create a full Wisconsin River DO model and redistribute BOD5 wasteload allocations. Rule and guidance will be developed to reflect the process for sampling and modeling in the future. Preliminary projected cost of sampling for the complete model is \$186,000. These methods may be applied to the Lower Fox and Peshtigo Rivers as the need arises.

- 1) Sample sites associated with project: 14 instream sites, 4 stationary sites, 9 point sources. 27 total sites. Details are explained further in the attached Study Design Section
- 2) Number of Sampling Events: 2 sampling events will be conducted during FY16. We anticipate sampling in late July and September 2016
- 3) Date of Completion: Sampling should be complete by September 2016
- 4) Data Entry: All Data will be entered into Databases by October 2016
- 5) Report: A Final Report will Be completed by December 2016 to allow for new sampling plans to be proposed.
- 6) Database: SWIMS
- 7) Data Entry: Central office staff will enter data

**Study Design:** See Attached Study Design Document

**QA Measures:** All sampling protocols will be followed and data entered into the appropriate data bases. Affected permittees will be contacted regarding the monitoring effort and administrative code changes.

### People

Name	Role	Status	Start Date	End Date	Organization	Comments
DIEBEL, MATTHEW W	COORDINATOR	COMPLETE	1/1/2016	12/31/2017	Wisconsin DNR	
HAZUGA, MARK J	TEAM_MEMBER	ACTIVE	7/1/2016	6/30/2017	Wisconsin DNR	
Hettler, Eric N	COORDINATOR	ACTIVE	5/1/2019		Wisconsin DNR	
OLDENBURG, PATRICK S	COORDINATOR	ACTIVE	1/1/2016	12/31/2017	Wisconsin DNR	
ZIMMERMAN, JACOB L	COORDINATOR	COMPLETE	1/1/2016	12/31/2017	Wisconsin DNR	
ZIMMERMAN, JACOB L	PROJECT_LEAD	COMPLETE	7/1/2016	6/30/2017	Wisconsin DNR	

### Project Statuses

Date	Reported By	Status	Comments
2/4/2016	JACOB ZIMMERMAN	Proposed	

### Project Status Detail

### Actions

Action	Detailed Description	Start Date	End Date	Status
Monitor Water Quality or Sediment	Effluent samples will be collected from 9 dischargers. Water quality data will be collected at 14 in stream locations. 8 sediment cores will be collected	7/1/2016	6/30/2017	PROPOSED
Data analysis, report production	CO staff will review all collected data and provide a recommendation on future data collection needs.	7/1/2016	6/30/2017	PROPOSED
Water Quality Modeling	Data collected will be used to run EPD-RIV1 model. The model will provide a longitudinal profile of dissolved oxygen along segment BC of the Wisconsin River	7/1/2016	6/30/2017	PROPOSED

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TMDL Development	Data will be used to develop a new BOD5 TMDL for the main stem of the Wisconsin River	7/1/2016	6/30/2017	PROPOSED
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### Monitoring Stations

Station ID	Name	Comments
10030620	Big Eau Pleine River - Tailwater below Big Eau Pleine Dam	
10046856	Domtar Paper primary wastewater outfall 010	
373403	Eau Claire River at Dam Tailrace	
10046857	Lake Wausau below Hwy 29	
10046855	Lignotech process water outfall 001	
10030600	Lower Rib River (UW-23)	
373301	Mullins Cheese Factory Knowlton	
503042	Wisconsin River - 1.5 Mi Above Dubay Dam	
373289	Wisconsin River - 1/4 Mi Below Hog Creek	
503003	Wisconsin River - Above Dubay Dam - Deep Hole	
373287	Wisconsin River - Above Mosinee Dam	
373015	Wisconsin River - Foremost Mckesson Rothschild	
373241	Wisconsin River - Mosinee Paper Corp Mosinee 001	
373400	Wisconsin River - Rib Mountain Metro Sewr Dis Stp	
373009	Wisconsin River - Wausau Stp	
10046858	Wisconsin River at Happy Hollow Rd	
10046870	Wisconsin River at River Side Park	
10046854	Wisconsin River at River's Edge Restaurant	
373024	Wisconsin River at Sth 34 Lake Dubay	
10046871	Wisconsin River, Below Tailrace of Rothschild Dam	
10046872	Wisconsin River, Tailrace of Mosinee Power Turbines	

### Assessment Units

WBIC	Segment	Local Name	Official Name
1179900	10	Wisconsin River	Wisconsin River
1179900	11	Wisconsin River	Wisconsin River
1179900	12	Wisconsin River	Wisconsin River
1396900	1	Biron Flowage	Biron Flowage
1412200	1	Lake DuBay	Lake Du Bay
1412200	2	Lake Du Bay	Lake Du Bay
1427200	2	Big Eau Pleine River	Big Eau Pleine River
1427400	1	Big Eau Pleine Flowage	Big Eau Pleine Reservoir

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1427400	2	Big Eau Pleine Reservoir	Big Eau Pleine Reservoir
1437500	1	Lake Wausau	Lake Wausau
1437800	1	Eau Claire Flowage (Schofield)	Eau Claire Flowage
1451800	8	Big Rib River	Big Rib River

### Lab Account Codes

Account Code	Description	Start Date	End Date
WQ021	WISCONSIN RIVER BOD TMDL PILOT	4/7/2016	12/31/2017

### Forms

Form Code	Form Name
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### Methods

Method Code	Method Description
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### Fieldwork Events

Start Date	Status	Field ID	Station ID	Station Name
7/25/2016 10:28	COMPLETE	LR1	10030600	Lower Rib River (UW-23)
7/25/2016 11:00	COMPLETE	WR4	10046871	Wisconsin River, Below Tailrace of Rothschild Dam
7/25/2016 11:20	COMPLETE	HW1	10046870	Wisconsin River at River Side Park
7/25/2016 11:30	COMPLETE	WR5	10046857	Lake Wausau below Hwy 29
7/25/2016 12:37	COMPLETE	WR-06	10046858	Wisconsin River at Happy Hollow Rd
7/25/2016 12:55	COMPLETE	EC1	373403	Eau Claire River at Dam Tailrace
7/25/2016 12:56	COMPLETE	WR11	373024	Wisconsin River at Sth 34 Lake Dubay
7/25/2016 13:22	COMPLETE	WR-07	373287	Wisconsin River - Above Mosinee Dam
7/25/2016 13:31	COMPLETE	WR-12	503042	Wisconsin River - 1.5 Mi Above Dubay Dam
7/25/2016 14:02	COMPLETE	WR-13	503003	Wisconsin River - Above Dubay Dam - Deep Hole
7/25/2016 14:07	COMPLETE	WR-10	373289	Wisconsin River - 1/4 Mi Below Hog Creek
7/25/2016 14:20	COMPLETE	BE1	10030620	Big Eau Pleine River - Tailwater below Big Eau Pleine Dam
7/25/2016 14:25	COMPLETE	WR-08	10046872	Wisconsin River, Tailrace of Mosinee Power Turbines
7/25/2016 16:15	COMPLETE	DB1	10046854	Wisconsin River at River's Edge Restaurant
9/14/2016 8:20	COMPLETE	LR	10030600	Lower Rib River (UW-23)
9/14/2016 9:25	COMPLETE	WAU	10046870	Wisconsin River at River Side Park
9/14/2016 9:42	COMPLETE	WR5	10046857	Lake Wausau below Hwy 29
9/14/2016 9:50	COMPLETE	WR-4	10046871	Wisconsin River, Below Tailrace of Rothschild Dam
9/14/2016 10:18	COMPLETE	EC	373403	Eau Claire River at Dam Tailrace
9/14/2016 10:56	COMPLETE	WR-6	10046858	Wisconsin River at Happy Hollow Rd
9/14/2016 11:20	COMPLETE	WR-7	373287	Wisconsin River - Above Mosinee Dam

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9/14/2016 11:31	COMPLETE	WR11	373024	Wisconsin River at Sth 34 Lake Dubai
9/14/2016 11:31	COMPLETE	WR11 DUP	373024	Wisconsin River at Sth 34 Lake Dubai
9/14/2016 12:03	COMPLETE	WR12	503042	Wisconsin River - 1.5 Mi Above Dubai Dam
9/14/2016 12:24	COMPLETE	WR13	503003	Wisconsin River - Above Dubai Dam - Deep Hole
9/14/2016 12:44	COMPLETE	WR-10	10046872	Wisconsin River, Tailrace of Mosinee Power Turbines
9/14/2016 12:45	COMPLETE	BEP	10030620	Big Eau Pleine River - Tailwater below Big Eau Pleine Dam
9/14/2016 13:17	COMPLETE	WR-8	373289	Wisconsin River - 1/4 Mi Below Hog Creek
9/14/2016 13:20	COMPLETE	DUBAY	10046854	Wisconsin River at River's Edge Restaurant

### Documents

Title	Description	Author	Published	Comments
Characterizing carbonaceous biochemical oxygen demand load reductions from pulp and paper mills for activities related to total maximum daily loads	Highlights the relationship between BOD and UBOD. BODU is not a direct effect of additional BOD5.	James E. Palumbo	1/1/2010	
EPD-RIV1	EPD-RIV1 user manual	James L. Martin	4/2/2002	
Effluent carbonaceous biochemical oxygen demand (CBOD) characterization for modern pulp and paper facilities	Technical report BOD characterization that was put together by the National Council for Air and Stream Improvement.	J. E. Palumbo	7/1/2010	
Final TMDL for Dissolved Oxygen In Savannah Harbor	EPA Region 4's report on the Savannah Harbor DO TMDL. A project of similar scope using the EPD-RIV1 model	EPA Region 4	10/2/2006	
Project Map	Map of project extent. Includes point sources, monitoring stations, sediment monitoring stations.	Jacob Zimmerman	2/4/2016	
Study Design	Detailed explanation of the study design for sampling events. Also includes details on SLOH contact and dye/SOD bids.	Jacob Zimmerman	2/22/2016	

### Budget

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**Budget Description:** FY2017 **Start Date:** 7/1/2016 **End Date:** 6/30/2017

Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours	365	Hours		\$0.00	Field/ office/ Logistics- No Modeling Hours
LTE SAL	LTE Salary	60	Hours	\$13.00	\$780.00	Field Work
LTE FR	LTE Fringe				\$192.66	
LTE IND	LTE Indirect				\$157.28	
LTE TOT	LTE Total Cost				\$1,129.94	
SUPPLY	Supplies	1		\$20,765.00	\$20,765.00	Includes Quotes for 9 SOD samples, Dye Travel Time Study, and additional Lab cost for long term BOD (120/sample)
EQUIP	Equipment	1		\$3,200.00	\$3,200.00	YSI replacement parts +composite sampling equipment
MILEAGE	Mileage	3600	Miles	\$0.72	\$2,592.00	850 per event + 300 for extra samples
MEAL	Meals	134	Meals	\$9.00	\$1,206.00	10 staff, 5 meals, 2 events
LODGE	Lodging	10		\$80.00	\$800.00	5 rooms, 2 events
TRAVEL	Travel Total				\$4,598.00	
BUG	Bug Contracts				\$0.00	
OTHER	Other Contracts				\$0.00	
USGS	USGS Costs				\$0.00	
<b>TOTAL</b>	<b>Total Cost (excludes SLOH)</b>				<b>\$29,692.94</b>	

**Total WSLH Lab Costs:** \$0.00

**Total Budget:** \$29,692.94

**Combined Budgets:** \$29,692.94

**Combined WSLH:** \$0.00

**Combined Total:** \$29,692.94

Funding					
Organization	Source	Type	Amount	Start Date	End Date