

## Wisconsin Department of Natural Resources SWIMS Project Summary

### General Project Information

- Project ID:** SCR\_09\_CMP18
- Name:** Devil's Lake Monitoring 7/1/2018 - 6/30/2019
- Type:** Competitive Projects
- Subtype:** Lake Program Activities
- Status:** PROPOSED
- Start Date:** 7/1/2018
- End Date:** 6/30/2019
- Purpose:** Devil's Lake – the centerpiece to Wisconsin's most popular state park – has been monitored by the Bur. of Research/Science Services with vertical profile sampling throughout the open water period since 1986, first to document and understand the lake's water quality problems that were shown to be directly or indirectly linked to excessive internal loading/recycling of phosphorus (P). To reduce internal P loading, a hypolimnetic withdrawal system was evaluated and then installed in the summer of 2002 and operated in late summer/early fall when bottom water P concentrations are typically highest. Lake monitoring has continued to this day to evaluate the effectiveness of the hypolimnetic withdrawal system to reduce the lake's water quality problems and to return the lake to its historically infertile trophic state. This monitoring is critical for making day to day siphon pipe management decisions, as well as future decisions about if and when fall P removal should be halted in response to changing lake chemistry.
- Objective:** All monitoring is conducted at the deep hole, which is the location of the intake end of the pipe. Monitoring of Devil's Lake (WBIC 980900) will be conducted on 8 dates from late April through early November following protocols and procedures consistent with previous years of monitoring. Funds requested to support these 8 lake samplings are 80 hours of LTE time (plus fringe and indirect costs). Richard Lathrop will conduct this monitoring with the assistance of non-paid volunteers as he has done for the past 15 years. The travel money is to support the 8 monitoring trips to the lake.
- Comments:** This is the last year of a continuing project, to be done for 1 year. the Devil's Lake State Park concession corporation will continue to fund the bottom water withdrawal monitoring and monitoring related to the discharge permit. (Of note, the annual Water Quality Trading Report for 2017 was recently completed and submitted by Lathrop and approved by DNR wastewater staff.) In addition, the park concession pays for the annual operating costs of the USGS lake level and precipitation gage at Devil's Lake. In addition to this, the state Basic Agreement Allotment funds the lab analysis for this project. Thus, the lake monitoring work is part of a larger project to improve water quality in Devil's Lake. Note, the supplies request of \$250 is higher than in previous years because the 15-hp outboard motor needs to be professionally serviced as the motor was running rough during the fall of 2017.
- Outcome:** This project continues the monitoring initiated in 1986 and continued each year both before and after the installation of the bottom withdrawal pipe system in the summer of 2002.
- Study Design:** The lake monitoring done over 8 sampling events (i.e., spring turnover sampling in late April, sampling every 3 weeks from late June through early October [6 samplings], and fall turnover in early November) entails not only collecting temperature and dissolved oxygen profiles along with traditional trophic state indicator data (i.e., Secchi depth; epilimnetic P and Chl-a concentrations), but also extensive sampling of the lake's hypolimnion with bottom-up profiles of P, iron (Fe), and sulfate concentrations being collected during the summer and early fall season as a response to hypolimnetic anoxia. These hypolimnetic parameters are needed to elucidate changes in the lake's internal P recycling rates, Fe scavenging potential of P, and sulfate reduction rates (linked to bacterial methylation of mercury). This 8 monitoring date schedule is a reduction from the historical 12 lake samplings per year conducted through June 2017 when the monitoring was reduced to 8 samplings due to budgetary constraints, but the 8 samplings retain the most important monitoring objectives and water quality evaluation indices.
- QA Measures:** All chemical analyses are performed at the Wisconsin State Laboratory of Hygiene using EPA approved QA procedures.

### People

Name	Role	Status	Start Date	End Date	Organization	Comments
Lathrop, Richard C	LAKE_BIOLOGIST	ACTIVE	7/1/2018	6/30/2019	Wisconsin DNR	
Lathrop, Richard C	PROJECT_LEAD	ACTIVE	7/1/2018	6/30/2019	Wisconsin DNR	This is the correct Role for this project. SG
SEARLE, GREGORY S	SUPERVISOR	COMPLETE	7/1/2015	6/30/2017	Wisconsin DNR	

## Wisconsin Department of Natural Resources SWIMS Project Summary

### Project Statuses

Date	Reported By	Status	Comments
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### Project Status Detail

Answer Set: DEFAULT

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

### Actions

Action	Detailed Description	Start Date	End Date	Status
Monitor Water Quality or Sediment	This monitoring is critical for making day to day siphon pipe management decisions, as well as future decisions about if and when fall P removal should be halted in response to changing lake chemistry.	7/1/2018	6/30/2019	PROPOSED

### Monitoring Stations

Station ID	Name	Comments
573121	Devils Lake - Deep Hole	

### Assessment Units

WBIC	Segment	Local Name	Official Name
980900	1	Devils Lake	Devils Lake

### Lab Account Codes

Account Code	Description	Start Date	End Date
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### 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
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**Wisconsin Department of Natural Resources  
SWIMS Project Summary**

**Documents**

Title	Description	Author	Published	Comments
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**Budget**

Budget Description: FY2016

Start Date: 7/1/2015

End Date: 6/30/2016

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	
EQUIP	Equipment				\$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				\$0.00	
OTHER	Other Contracts				\$0.00	
USGS	USGS Costs				\$0.00	
TOTAL	Total Cost (excludes SLOH)				\$0.00	

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

**Total Budget:** \$0.00

## Wisconsin Department of Natural Resources SWIMS Project Summary

Budget Description: FY2019

Start Date: 7/1/2018

End Date: 6/30/2019

Code	Description	Quantity	Units	Unit Cost	Total Cost	Comments
FTE	FTE Hours		Hours	\$0.00	\$0.00	
LTE SAL	LTE Salary	80	Hours	\$22.47	\$1,797.60	
LTE FR	LTE Fringe				\$444.01	
LTE IND	LTE Indirect				\$362.47	
LTE TOT	LTE Total Cost				\$2,604.08	
SUPPLY	Supplies	250		\$1.00	\$250.00	
EQUIP	Equipment				\$0.00	
MILEAGE	Mileage	960	Miles	\$0.72	\$691.20	
MEAL	Meals	8	Meals	\$9.00	\$72.00	
LODGE	Lodging				\$0.00	
TRAVEL	Travel Total				\$763.20	
BUG	Bug Contracts				\$0.00	
OTHER	Other Contracts				\$0.00	
USGS	USGS Costs				\$0.00	
TOTAL	Total Cost (excludes SLOH)				\$3,617.28	

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

**Total Budget:** \$3,617.28

**Combined Budgets:** \$3,617.28

**Combined WSLH:** \$0.00

**Combined Total:** \$3,617.28

Funding					
Organization	Source	Type	Amount	Start Date	End Date