

## Wisconsin Department of Natural Resources SWIMS Project Summary

### General Project Information

**Project ID:** LPL-632

**Name:** CITY OF EAU CLAIRE: Half Moon Lake Assessment, Tasks 3 and 4, Eau Claire

**Type:** Lakes Grant

**Subtype:** Large Scale Lake Planning

**Status:** COMPLETE

**Start Date:** 10/1/1999

**End Date:** 12/31/2001

**Purpose:** The City of Eau Claire proposes to continue its study of internal and external nutrient loading in Half Moon Lake. Phase Three and Four activities include "bathtub" modeling and reporting to determine the role macrophytes play in phosphorus recycling, and the role Ski Sprites waterski activities play in phosphorus recycling and transport. The Department of Natural Resources will be provided both paper and electronic copies of the final report. The project results will be disseminated to the public through mailings, meetings, newspaper, radio, television and the completion and dissemination of a comprehensive lake management plan.

**Objective:**

**Comments:**

**Outcome:**

**Study Design:**

**QA Measures:**

### People

Name	Role	Status	Start Date	End Date	Organization	Comments
City of Eau Claire,	GRANT_RECIPIENT	ACTIVE	10/1/1999	12/31/2001	City of Eau Claire	

### Project Statuses

Date	Reported By	Status	Comments
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### Actions

Action	Detailed Description	Start Date	End Date	Status
Develop/Distribute Brochures/Literature		10/1/1999	12/31/2001	PROPOSED
Lake Management Plan Development		10/1/1999	12/31/2001	PROPOSED
Issue News/Media Release		10/1/1999	12/31/2001	PROPOSED

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Grant Awarded	The City of Eau Claire proposes to continue its study of internal and external nutrient loading in Half Moon Lake. Phase Three and Four activities include "bathtub" modeling and reporting to determine the role macrophytes play in phosphorus recycling, and the role Ski Sprites waterski activities play in phosphorus recycling and transport. The Department of Natural Resources will be provided both paper and electronic copies of the final report. The project results will be disseminated to the public through mailings, meetings, newspaper, radio, television and the completion and dissemination of a comprehensive lake management plan.	10/1/1999		COMPLETE
Develop/Distribute Newsletter		10/1/1999	12/31/2001	PROPOSED
Water Quality Modeling	10099738	10/1/1999		PROPOSED

### Monitoring Stations

Station ID	Name	Comments
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### Assessment Units

WBIC	Segment	Local Name	Official Name
2125400	1	Half Moon Lake	Halfmoon 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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### Documents

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

Title	Description	Author	Published	Comments
Direct and Indirect Impacts of Submersed Aquatic Vegetation on the Nutrient Budget of an Urban Oxbow Lake	Submersed aquatic macrophytes can play an important role in the phosphorus budget of aquatic systems; thus, their impacts need to be considered in lake management and rehabilitation plans. In particular, macrophytes can directly recycle phosphorus from the sediment via root uptake, incorporation into tissue, and subsequent senescence (Barko and Smart 1980; Carpenter 1980; Landers 1982; Smith and Adams 1986; Barko and James 1998). They can also indirectly recycle phosphorus from the sediment via increasing pH in the water column through photosynthetic activities. Phosphorus release from sediments can be enhanced at high pH as a result of ligand exchange on iron oxides contained in the sediment (Drake and Heaney 1987). These processes can lead to phosphorus enrichment of aquatic systems and eutrophication. The objectives of this study were to evaluate direct and indirect impacts of a near monotypic stand of <i>Potamogeton crispus</i> L. on the phosphorus economy of Half Moon Lake.	William F. James, John W. Barko, & Harry L. Eakin	3/1/2001	
HALF MOON LAKE ASSESSMENT, TASKS 3 AND 4, EAU CLAIRE	Lakes Planning Report	Grant Recipient	12/31/2001	

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Phosphorus Budget and Management Strategies for an Urban Wisconsin Lake [2002 Research Paper]	Multiple external and internal phosphorus (P) sources to an urban lake, Half Moon Lake in Wisconsin, were examined during the summer of 1999 in order to develop management strategies for effective P control and reversal of eutrophication (Trophic State Index=74). Internal recycling of P accounted for 80% of the summer P budget of the lake. Flux of P from the sediment accounted for most of the internal P loading ( 42% of total budget). However, decomposition of Potamogeton crispus and recycling of macrophyte P during the middle of the summer growing season, and P resuspension due to motor boat activity, accounted for 20% and 17% of the P budget, respectively, representing additional important sources to be controlled. In contrast, summer P loading via the watershed (storm sewers and precipitation) was much less. Using a water quality model (Bath tub), we found that reduction of internal P sources could substantially reduce by greater than 70% the high concentrations of algae in the lake (mean summer chlorophyll = 82 mg m <sup>3</sup> ). Suggested internal P control measures included a sediment chemical treatment to bind P, greater harvesting of P. crispus to reduce the macrophyte P pool at the time of senescence, and limiting motor boat activity when the lake is weakly stratified.	William F. James, John W. Barko, Harry L. Eakin (U.S. Army Engineers) & Patrick W. Sorge (WDNR)	1/1/2002	
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### Budget

**Combined Budgets:**

**Combined WSLH:**

**Combined Total:** \$0.00

### Funding

Organization	Source	Type	Amount	Start Date	End Date
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